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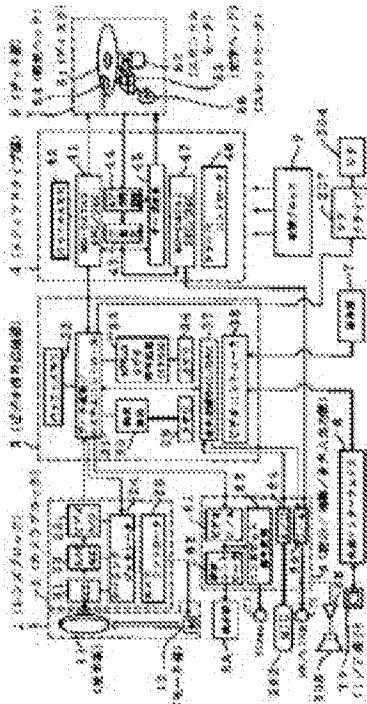
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(54) RECORDING/REPRODUCING DEVICE, RECORDING/REPRODUCING METHOD, AND STORAGE MEDIUM



(57)Abstract:

PROBLEM TO BE SOLVED: To create a work with suitable quality even if a user does not have any advanced editing operation knowledge by providing an editing processing program, displaying a guide for prompting the input of information being required for editing, and inputting an image pick-up/sound recording and required information according to the guide display.

SOLUTION: A mini disk, where an editing processing program that is made specific according to a playbook being prepared in advance, is selected according to the subject of an image work and loaded into a video camera. A video controller 38 displays a guide for prompting required input, image pick-up, and sound-recording operation at a display part 6A based on the editing processing program being read from the mini disk. When a user performs a

required operation according to the guide, inputted editing material information is stored successively stored in a directory that is prepared in advance. A script file for editing for outputting images and speech sounds according to the playbook is automatically

generated and recorded using the editing material information obtained by input operation.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the recording medium corresponding to the recording and reproducing device which can perform record reproduction about a picture sound, recording and reproducing systems and such a recording and reproducing device, and a method.

[0002]

[Description of the Prior Art] It is in the situation where the portable video camera device with which the imaging device provided with CCD etc. and the recording and reproducing device in which record reproduction of a video voice is possible were put together has spread widely as a consumer product, in recent years.

[0003] The request which can bear appreciation more of liking to finish as a work is also becoming strong with the spread of such video cameras by it only playing and not only appreciating the video source which the user itself recorded by photography, but editing about the recorded video source.

[0004]

[Problem(s) to be Solved by the Invention] However, under the present circumstances, separately, purchase editing equipment for exclusive use and do not use it, or when it is thought that a general user will edit, it is not obtained so that there may be no other way but to Image Processing Division use and handiness may consider, and it is also forced the economical burden.

[0005] Even if it edits using the above editing equipment or Image Processing Division software, there is the side in which it cannot necessarily be said that a high quality work is made. That is, it is because the case where it is said that a general user does not know well about the know how of edit is made usual.

[0006]

[Means for Solving the Problem] Then, an object in consideration of above-mentioned SUBJECT of this invention is for an image work of suitable quality to be got by users, such as a common video camera, by easy editing work.

[0007] For this reason, an input instruction program which realizes at least a display of a user interface picture which directs an input of edit material information, An edit program which realizes editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by this input instruction program, A script file which is described by predetermined program language and specifies a picture and a reproducing output mode about a sound, As a recording and reproducing device which can perform record or reproduction corresponding to a recording medium with which picture information and speech information are recorded, A display control means which performs a display output of a user interface picture according to an input instruction program reproduced from a recording medium, A control means to which operation for inputting necessary information according to an

instruction content displayed by a user interface picture is carried out, An imaging means which obtains an image pick, an image recording means recorded to the above-mentioned recording medium according to an instruction content displayed by a user interface picture by making into described image information an image pick obtained by the above-mentioned imaging means, and a sound-collecting means to collect a sound, A voice recording means to record on a recording medium by making into speech information a sound collected by the above-mentioned sound-collecting means according to directions by a user interface picture, Information inputted by a control means as editing processing according to an edit program reproduced from a recording medium, Picture information recorded on a recording medium by image recording means and a voice recording means, The script file generation / recording device which uses speech information as edit material information, generates automatically a script file for edit which description for a picture and voice response according to a scenario to be obtained was made, and is recorded on a recording medium, We decided to perform reproduction about picture information currently recorded on a recording medium, and speech information, and a necessary picture/speech signal processing according to a descriptive content of the above-mentioned script file for edit reproduced from a recording medium, and to have and constitute a reproduction means it is made to have a picture and voice response performed.

[0008]A display control process which performs a display output of this user interface picture based on an input instruction program which realizes a display of a user interface picture which directs an input of edit material information as recording and reproducing systems, Input acquisition processing in which information inputted by the operation performed according to an instruction content displayed by a user interface picture is acquired, Image recording processing recorded to the above-mentioned recording medium by making into described image information a picture picturized by an imaging means according to an instruction content displayed by a user interface picture, Voice recording processing recorded on a recording medium by making into speech information a sound collected by a sound-collecting means according to directions by a user interface picture, According to an edit program to realize, editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by an input instruction program by input acquisition processing. Picture information and speech information which were recorded on a recording medium by information and image recording processing which were obtained, and the above-mentioned voice recording processing are used as edit material information, The script file generation / recording processing which generates automatically a script file for edit which description for a picture and voice response according to a scenario to be obtained was made, and is recorded on a recording medium, It was presupposed that regeneration which performs reproduction about picture information currently recorded on a recording medium according to a descriptive content of a script file for edit reproduced from a recording medium and speech information, and a necessary picture/speech signal processing, and performs a picture and voice response is constituted so that execution is possible.

[0009]A record section where record of an input instruction program which realizes at least a display of a user interface picture which directs an input of edit material information as a recording medium is enabled, A record section whose record of an edit

program which realizes editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by this input instruction program is enabled, As edit material information which is said to have been obtained according to an instruction content displayed by a user interface picture, Picture information, speech information, and text are a record section whose record is enabled, and a thing which is described by predetermined program language and specifies a picture and a reproducing output mode about a sound, It was generated under editing processing of an edit program, and we decided to set up a record section where a record section where a script file which has a descriptive content for realizing a picture and voice response which followed a scenario by using edit material information is recorded is recorded.

[0010]GUI (Graphical User Interface) as a guide function to which an input of input required for edit is urged according to a program for edit is displayed, and a user is made to have alter operation, photography/sound recording, etc. performed according to this guide according to the above-mentioned composition. And a script for giving various editing effects (reproducing output mode) about the picture/voice source recorded and recorded as input as editing processing according to old alter operation until now is generated automatically. That is, it is constituted so that editing processing may be automatically performed under a guide function using information acquired by alter operation which a user performed, and an edit raw material obtained by photography/sound recording.

[0011]

[Embodiment of the Invention]Hereafter, the image processing device of the embodiment of the invention is explained. The case where it is carried in the portability type video camera in which the camera device part, the picture (Still Picture Sub-Division or animation), and the recording and reproducing device part in which audio record reproduction is possible were unified as an image processing device of this embodiment is mentioned as an example. The recording and reproducing device part carried in the video camera of this example has the composition which is known as a kind of a magneto-optical disc and which carries out record reproduction of the data corresponding to what is called a mini disc taken. Explanation is given in the following order.

1. To the editing processing 8-1. guide function of the example of disk structure 6. thumbnail image generation processing 7. script outline 8. book embodiment corresponding to the composition 5. book embodiment of the internal configuration 4. media drive part of the appearance composition 3. video camera of a disc format 2. video camera. Information inputting 8-2. editing processing which followed [0012]1. The recording and reproducing device part carried in the video camera of the example of a disc format book is supposed that the format which performs record/playback of data corresponding to a mini disc (magneto-optical disc) and which is called MD data is supported. Although two kinds of formats called MD-DATA1 and MD-DATA2 are developed as this MD data format, The video camera of this example is having record reproduction performed rather than MD-DATA1 corresponding to the format of MD-DATA2 whose high density recording is made possible. Then, the disc format of MD-DATA2 is explained first.

[0013]Drawing 1 and drawing 2 show notionally the example of track structure of the disk as MD-DATA2. Drawing 2 (a) and (b) is the sectional view and top view expanding

and showing the portion bundled with the dashed line A of drawing 1, respectively. As shown in these figures, to a disc face, two kinds of grooves (slot) of wobbled groove WG to which the wobble (meandering) was given, and the non wobbled groove NWG to which the wobble is not given are formed beforehand. And as these wobbled groove WG and the non wobbled groove NWG form the land Ld between them, they exist in double spiral shape on a disk.

[0014]Although the land Ld is used as a track in MD-DATA2 format, Since wobbled groove WG and the non wobbled groove NWG are formed as mentioned above, it will be formed in the shape of [in which track Tr-A and two tracks of Tr-B are double independently respectively also as a track] a spiral (double spiral). Track Tr-A serves as a track with which wobbled groove WG is located in the disk periphery side, and the non wobbled groove NWG is located in the disk inner circumference side. On the other hand, track Tr-B serves as a track with which wobbled groove WG is located in the disk inner circumference side, and the non wobbled groove NWG is located in the disk periphery side. That is, it can be concluded that a wobble is formed only in one side by the side of a disk periphery to track Tr-A, and the wobble was formed only in one side by the side of disk inner circumference as track Tr-B. In this case, a track pitch serves as track Tr-A which adjoins mutually, and distance between each center of track Tr-B, and the track pitch is 0.95 micrometer as shown in drawing 2 (b).

[0015]Here, the wobble formed in the groove as a wobbled groove WG is formed based on the signal with which the physical address on a disk was encoded by FM modulation + biphasic abnormal conditions. For this reason, it becomes possible to extract the physical address on a disk by carrying out recovery processing of the reproduction information acquired from wobbling given to wobbled groove WG at the time of record reproduction. Let address information as a wobbled groove WG be an effective thing in common to track Tr-A and Tr-B. That is, it is made for track Tr-A located in inner circumference on both sides of wobbled groove WG and track Tr-B located in a periphery to have the address information by wobbling given to the wobbled groove WG shared. Such an addressing method is also called interlace addressing method. After controlling the cross talk between adjoining wobbles by adopting this interlace addressing method, for example, it becomes possible to make a track pitch small. About the method which records an address by forming a wobble to a groove, it is ADIP (Address In Pregroove). It is also called a method.

[0016]Discernment any of track Tr-A and Tr-B which share the same address information as mentioned above to trace can be performed as follows. For example, 3 beam methods are applied and two side beams which remain can consider tracing the groove located in both the sides of the track which the above-mentioned main beam is tracing in the state where the main beam is tracing the track (land Ld).

[0017]The state where the main beam spot SPm is tracing track Tr-A is shown in drawing 2 (b) as an example. In this case, side beam spot SPs1 by the side of inner circumference will trace the non wobbled groove NWG among two side beam spot SPs1 and SPs2, and side beam spot SPs2 by the side of a periphery will trace wobbled groove WG. On the other hand, although not illustrated, if it is in the state where the main beam spot SPm is tracing track Tr-B, Side beam spot SPs1 will trace wobbled groove WG, and side beam spot SPs2 will trace the non wobbled groove NWG. By thus, the case where the main beam spot SPm traces the case where track Tr-A is traced, and track Tr-B. As a groove

which side beam spot SPs1 and SPs2 should trace, it will be inevitably exchanged by wobbled groove WG and the non wobbled groove NWG.

[0018]As a detecting signal acquired by reflection of side beam spot SPs1 and SPs2 in a photodetector, From a waveform which is different by any shall be traced between wobbled groove WG and the non wobbled groove NWG being acquired. Based on the above-mentioned detecting signal, by distinguishing which is tracing wobbled groove WG (or non wobbled groove NWG) among present side beam spot SPs1 and SPs2, Which the main beam shall trace between track Tr-A and Tr-B can identify.

[0019]Drawing 3 is a figure showing the main spec. of MD-DATA2 format ** which has the above track structures as compared with MD-DATA1 format. First, as MD-DATA1 format, a track pitch is set to 1.6 micrometers and pit length becomes in 0.59micrometer/bit. It is considered as the laser wavelength of $\lambda = 780 \text{ nm}$, and is referred to as numerical aperture $NA = 0.45$ of an optical head. The groove-recordings method is taken as a recording method. That is, he is trying to use for record reproduction by using a groove as a track. After forming the groove (track) by a single spiral as an addressing scheme, the method using the wobbled groove which formed the wobble as address information to the both sides of this groove is taken.

[0020]As a modulation method of record data, the EFM (8 -14 conversion) method is adopted. As error correcting system, ACIRC (Advanced Cross Interleave Reed-Solomon Code) was adopted, it collapsed in data interleave and the mold is adopted. For this reason, as relative redundancy of data, it becomes 46.3%.

[0021]In MD-DATA1 format, CLV (Constant Linear Verocity) is adopted as a disk drive system, and it is considered as 1.2 m/s as linear velocity of CLV. And as a data rate of the standard at the time of record reproduction, it is considered as 133 kB/s and set to 140 MB as storage capacity.

[0022]On the other hand, it turns out that a track pitch shall be 0.95 micrometer, pit length is carried out in 0.39micrometer/bit, and it is shorter than both MD-DATA1 formats as MD-DATA2 format to which the video camera of this example can respond. And in order to realize the above-mentioned pit length, for example, as numerical aperture $NA = 0.52$ of the laser wavelength of $\lambda = 650 \text{ nm}$, and an optical head, the beam spot diameter in a focusing position is extracted, and the zone as an optical system is extended.

[0023]As a recording method, as drawing 1 and drawing 2 explained, a land recording method is adopted and an interlace addressing method is adopted as an addressing scheme. The RLL (1, 7) method (RLL;Run Length Limited) supposed that high density recording is suited as a modulation method of record data is adopted, and a block conclusion type is adopted as a RS-PC method and data interleave as error correcting system. And as a result of adopting the above-mentioned all directions type, as relative redundancy of data, controlling even to 19.7% is possible.

[0024]Also in MD-DATA2 format, although CLV is adopted as a disk drive system, as the linear velocity, it is considered as 2.0 m/s, and is considered as 589 kB/s as a data rate of the standard at the time of record reproduction. And when 650 MB can be obtained as storage capacity and it compares with MD-DATA1 format, it means that high-density-recording-ization of 4 or so times was realized. For example, when compression encoding by MPEG 2 is performed about dynamic image data, it depends also on the bit rate of coding data, noting that video is recorded by MD-DATA2 format, but it is supposed that

it is possible to use time and to record the animation for 15 minutes - 17 minutes. When compression processing by ATRAC (Adaptive Transform Acoustic Coding) 2 is performed about voice data noting that only speech signal data is recorded, it can be made time and record of about 10 hours can be performed.

[0025]2. The appearance lineblock diagram 6 (a), (b), and (c) of a video camera is the side view, top view, and rear elevation showing the example of appearance of the video camera of this example. As shown in these figures, on the main part 200 of the video camera of this example. As the camera lens 201 provided with the imaging lens for taking a photograph, the diaphragm, etc. expresses, it is provided, and the microphone 202 of the right-and-left couple for collecting an external sound in the upper face part of the main part 200 at the time of photography is formed, for example. That is, in this video camera, it is supposed that it is possible the recording of the picture photoed with the camera lens 201 and to record the stereo sound which collected the sound with the microphone 202.

[0026]The side side of the main part 200 is equipped with the indicator 6A, the loudspeaker 205, and the indicator 206. Let the indicator 6A be a part which carries out the display output of a taken image, the picture reproduced by the internal recording and reproducing device, etc. Although not limited especially here as a display device actually adopted as the indicator 6A, a liquid crystal display etc. should just be used, for example. The message indicator by a character, a character, etc. for telling a user about a necessary message according to operation of apparatus, etc. shall be carried out at the indicator 6A. From the loudspeaker 205, the playback voice is outputted at the time of playback of the recorded sound, and also the output of the necessary message voice by a beep sound etc., etc. are performed, for example. The indicator 206 emits light, for example during recording operation, and shows a user that a video camera is during recording operation.

[0027]The viewfinder 204 is formed and a picture, a character image, etc. which are incorporated from the camera lens 201 during recording operation and standby are displayed on the back side of the main part 200. The user can take a photograph, seeing this viewfinder 204. Furthermore, the disk slots 203, the video output terminal T1, the headphone / line terminal T2, and I / field terminal T3 are provided. Let the disk slots 203 be a slotted section for the disk as a recording medium with which the video camera of this example corresponds to be inserted or discharged. The video output terminals T1 are a terminal which outputs a reproduced image signal etc. to external Electronic Image Devices Division, and a terminal in which headphone / line terminal T2 outputs a reproduced sound signal to external audio apparatus and headphone. Let I / field terminal T3 be the input/output terminals of Interface Division for performing an external data facility and data communications, for example.

[0028]Various kinds of handlers (300301, and 304-310) for user's operation are provided in each part of the main part 200. The main dial 300 is a handler which sets up ON and OFF of a video camera, recording operation, and reproduction motion. When it is in the position of "OFF" so that a main dial may illustrate, it is considered as power OFF, and it will be rotating in the position of "STBY", will become a power turn, and will be in the standby state of recording operation. By rotating in the position of "PB", it will become a power turn and will be in the standby state of reproduction motion.

[0029]When the release key 301 is in a record standby state, it functions as a handler of a recording start or a record shutter.

[0030]The zoom key 304 is a handler which operates the zoom state about picture photography (a call side - a wide side). The eject key 305 is a handler for making the disk with which it is loaded into the disk slots 203 discharge. Playback / halt key 306, the stop key 307, and the search key 308,309 are prepared for the various operations at the time of the playback to a disk.

[0031]A cross joint / click key 310 is used in order for a user to move a pointer display to a right-and-left sliding direction on the thumbnail indication screen mentioned later. It is supposed that click operation can be performed now by carrying out pressing operation of the center portion of this key in this case. Let the jog dial 311 be a key for performing necessary selection operation and alter operation by performing rotatably operating under each operation mode. For example, under the state where it is considered as the character input mode, it becomes possible to choose the character which should be inputted by carrying out rotatably operating of this jog dial 311. When becoming final and conclusive an input character, pressing operation (click operation) should just be made to be performed, for example to this jog dial 311.

[0032]The appearance of the video camera shown in drawing 6 is an example to the last, and may be suitably changed according to the service condition etc. which are actually required of the video camera of this example. Of course, several kinds of kinds of handler, an operation system and also contact buttons with an external instrument, etc. are considered variously.

[0033]3. Internal configuration drawing 4 of a video camera is a block diagram showing the example of an internal configuration of the video camera of this example. In the lens block 1 shown in this figure, it has the optical system 11 constituted, for example by having an imaging lens, a diaphragm, etc. actually. The camera lens 201 shown in above-mentioned drawing 6 is contained in this optical system 11. This lens block 1 is equipped with the focal motor for making automatic focusing operation perform to the optical system 11, the zoom motor for moving the zoom lens based on operation of the above-mentioned zoom key 304, etc. as the motor section 12.

[0034]The camera block 2 is equipped with the circuit part for changing into a digital image signal the image light photoed mainly by the lens block 1. To CCD (Charge Coupled Device) 21 of this camera block 2, the optical image of the photographic subject which penetrated the optical system 11 is given. An imaging signal is generated by performing photoelectric conversion about the above-mentioned optical image in CCD21, and sample hold / AGC (Automatic Gain Control) circuit 22 is supplied. In sample hold / AGC circuit 22, a gain adjustment is performed about the imaging signal outputted from CCD21, and waveform shaping is performed by performing sample hold processing. The output of sample hold / AGC circuit 2 is that video A/D converter 23 is supplied, and is changed into the picture signal data as digital.

[0035]The signal-processing timing in the above-mentioned CCD21, the sample hold/AGC circuit 22, and video A/D converter 23 is controlled by the timing signal generated with the timing generator 24. In the timing generator 24, the clock used for signal processing in data processing / system control circuit 31 (inside of the video-signal-processing time part 3) mentioned later is inputted, and a necessary timing signal is generated based on this clock. He is trying to synchronize the signal-processing timing in the camera block 2 with the processing timing in the video-signal-processing part 3 by this. The camera controller 25 performs necessary control so that each above-mentioned

functional circuit unit which it has in the camera block 2 may operate properly, and it has the control for auto-focusing, automatic exposure adjustment, diaphragm adjustment, zoom, etc. performed to the lens block 1. For example, if it is autofocus control, the camera controller 25 will control the angle of rotation of a focal motor based on the focal control information acquired according to a predetermined autofocus control system. This will drive an imaging lens so that it may be in a focused state just.

[0036]The digital image signal supplied from the camera block 2 at the time [part / 3 / video-signal-processing] of record, And compression processing is performed about the digital sound signal acquired by having collected the sound with the microphone 202, and the latter media drive part 4 is supplied by using these compressed data as user record data. The digital image signal furthermore supplied from the camera block 2 and the picture generated with the character image are supplied to the viewfinder driving part 207, and it is made to display on the viewfinder 204. At the time of playback, recovery processing is performed about the user regenerative data supplied from the media drive part 4 (read data from the disk 51), i.e., the picture signal data by which compression processing was carried out, and speech signal data, and these are outputted as a reproduced image signal and a reproduced sound signal.

[0037]In this example, as compression / an expansion process method of picture signal data (image data), MPEG(Moving Picture Experts Group) 2 is adopted about video, and it is assumed about a still picture that JPEG (Joint Photographic Coding Experts Group) is adopted. ATRAC (Adaptive Transform Acoustic Coding) 2 shall be adopted as TA compression / expansion process method of an audio signal day.

[0038]Data processing / system control circuit 31 of the video-signal-processing part 3 mainly perform control management about compression/expansion process of the picture signal data in the video-signal-processing part 3 concerned, and speech signal data, and processing for managing input and output of the data which goes via the video-signal-processing part 3. As for the control management about the video-signal-processing part 3 whole including data processing / system control circuit 31, the video controller 38 is made to perform. This video controller 38 is provided with a microcomputer etc., for example, and is constituted, and two-way communication of it is made possible via the camera controller 25 of the camera block 2 and the driver controller 46 of the media drive part 4 mentioned later, the bus line which is not illustrated, for example, etc.

[0039]As fundamental operation at the time of the record in the video-signal-processing part 3, the picture signal data supplied to data processing / system control circuit 31 from video A/D converter 23 of the camera block 2 is inputted. In data processing / system control circuit 31, the inputted picture signal data is supplied to the motion detection circuit 35. In the motion detection circuit 35, after performing Image Processing Division, such as a motion compensation, about the picture signal data inputted while using the memory 36 as workspace, for example, the MPEG 2 video signal processing circuit 33 is supplied.

[0040]In the MPEG 2 video signal processing circuit 33, For example, using the memory 34 as workspace, according to the format of MPEG 2, compression processing is performed about the inputted picture signal data, and it is made to output the bit stream (MPEG 2 bit stream) of the compressed data as video. When extracting the image data as Still Picture Sub-Division, for example from the picture signal data as video and performing compression processing to this, it comprises the MPEG 2 video signal

processing circuit 33 so that the compressed image data as Still Picture Sub-Division may be generated according to the format of JPEG. Treating I picture (Intra Picture) made into regular image data as compressed image data based on the format of MPEG 2 as image data of Still Picture Sub-Division, without JPEG adopting is also considered. The picture signal data (compressed image data) by which compression encoding was carried out in the MPEG 2 video signal processing circuit 33 is written in by the predetermined transfer rate to the buffer memory 32, and is held temporarily, for example. In the format of MPEG 2, as everyone knows as what is called the coding bit rate (data rate), Both constant speed (CBR; Constant Bit Rate) and a variable speed (VBR; Variable Bit Rate) shall be supported, and it shall respond to these in the video-signal-processing part 3. [0041] For example, in performing graphical-data-compression processing by VBR, For example, in the motion detection circuit 35, if a macro block unit performs motion detection in the range the order tens - in hundreds of frames and image data is made into those with a motion, it will transmit to the MPEG 2 video signal processing circuit 33 by making this detection result into motion vector information. In the MPEG 2 video signal processing circuit 33, the quantization coefficient for every macro block is determined, using necessary information including the above-mentioned motion vector information so that the image data after compression encoding may be made into a certain necessary data rate.

[0042] The sound collected by the microphone 202 is inputted into a speech compression encoder / decoder 37 as speech signal data based on digital one via A/D converter 64 (inside of a display / picture / voice input/output part 6). In a speech compression encoder / decoder 37, compression processing to the speech signal data inputted according to the format of ATRAC2 as mentioned above is performed. The writing by a predetermined transfer rate is performed by data processing / system control circuit 31 to the buffer memory 32, and this compression audio signal data is also held here temporarily.

[0043] To the buffer memory 32, accumulation of compressed image data and compression audio signal data is enabled as mentioned above. The buffer memory 32 mainly has a function for absorbing the speed difference of the camera block 2 or the display / picture / voice input/output part 6, the data transfer rate between the buffer memories 32, and the data transfer rate between the buffer memory 32 and the media drive part 4. If it is the compressed image data and compression audio signal data which were accumulated in the buffer memory 32 at the record time, read-out will be performed by prescribed timing one by one, and they will be transmitted to the MD-DATA2 encoder / decoder 41 of the media drive part 4. However, read-out of the data stored in the buffer memory 32, for example at the time of playback and operation until it records this read data on the disk 51 via the deck part 5 from the media drive part 4 may be performed intermittently. The writing and reading control of data to such a buffer memory 32 are performed by data processing / system control circuit 31, for example.

[0044] As operation at the time of the playback in the video-signal-processing part 3, it is as follows roughly. The compressed image data which was read from the disk 51 and decoded by processing of the MD-DATA2 encoder / decoder 41 (inside of the media drive part 4) according to the MD-DATA2 format at the time of playback, Compression audio signal data (user regenerative data) is transmitted to data processing / system control circuit 31. In data processing / system control circuit 31, the compressed image data and compression audio signal data which were inputted, for example are once stored

up in the buffer memory 32. With and the necessary timing and transfer rate in which it was made to be obtained, for example in consistency of a regeneration time axis. Read-out of compressed image data and compression audio signal data is performed from the buffer memory 32, the MPEG 2 video signal processing circuit 33 is supplied about compressed image data, and a speech compression encoder / decoder 37 is supplied about compression audio signal data.

[0045]In the MPEG 2 video signal processing circuit 33, an expansion process is performed about the inputted compressed image data, and it transmits to data processing / system control circuit 31. In data processing / system control circuit 31, this picture signal data by which the expansion process was carried out is supplied to video D/A converter 61 (inside of a display / picture / voice input/output part 6). In a speech compression encoder / decoder 37, an expansion process is performed about the inputted compression audio signal data, and D/A converter 65 (inside of a display / picture / voice input/output part 6) is supplied.

[0046]In a display / picture / voice input/output part 6, the picture signal data inputted into video D/A converter 61 is changed into an analog picture signal here, to the display controller 62 and the composite signal processing circuit 63, branches and is inputted. In the display controller 62, the indicator 6A is driven based on the inputted picture signal. Thereby, the display of a reproduced image is performed in the indicator 6A. In the indicator 6A, not only the display of the picture acquired by playing from the disk 51 but the image pick produced by taking a photograph as a matter of course by the camera part which consists of the lens block 1 and the camera block 2 can carry out a display output in real time mostly. The message indicator by a character, a character, etc. for telling a user about a necessary message as mentioned above according to operation of apparatus besides a reproduced image and an image pick shall also be carried out. Such a message indicator, for example by control of the video controller 38. What is necessary is just made to perform processing which compounds the picture signal data of a necessary character, a character, etc. from data processing / system control circuit 31 to the picture signal data which should be outputted to video D/A converter 61 so that a necessary character, a character, etc. may be displayed on a position. That is, in this example, it shall have a character generator and a function of an onscreen display by the video controller 38, and the data processing/system control circuit 31.

[0047]In the composite signal processing circuit 63, it changes into a composite signal about the analog picture signal supplied from video D/A converter 61, and outputs to the video output terminal T1. For example, if connection is made with an external monitor device etc. via the video output terminal T1, it will become possible to display the picture played with the video camera concerned with an external monitor device.

[0048]In a display / picture / voice input/output part 6, the speech signal data inputted into D/A converter 65 from the speech compression encoder / decoder 37 is changed into an analog voice signal here, and is outputted to headphone / line terminal T2. Via the amplifier 66, the analog voice signal outputted from D/A converter 65 will branch, and will be outputted also to loudspeaker SP, and a playback voice etc. will be outputted from loudspeaker SP by this.

[0049]In the media drive part 4, at the time of record, according to MD-DATA2 format, mainly encode record data so that disk recording may be suited, and it transmits to the deck part 5, In the time of playback, regenerative data is obtained by decoding about the

data read from the disk 51 in the deck part 5, and it transmits to the video-signal-processing part 3.

[0050]The MD-DATA2 encoder / decoder 41 of this media drive part 4, At the time of record, record data (compressed-image-data + compression audio signal data) is inputted from data processing / system control circuit 31, About this record data, predetermined encoding processing according to MD-DATA2 format is performed, and this encoded data is stored in the buffer memory 42 temporarily. And it transmits to the deck part 5, reading to necessary timing.

[0051]At the time of playback, it is read from the disk 51 and decoding according to MD-DATA2 format is performed about the digital regenerative signal inputted via the RF signal processing circuit 44 and the binarization circuit 43, It transmits to data processing / system control circuit 31 of the video-signal-processing part 3 as regenerative data. If there is necessity in this case, regenerative data will once be accumulated in the buffer memory 42, and it is made to carry out the transmission output of the data read from here to necessary timing to data processing / system control circuit 31. As for such the writing/reading control to the buffer memory 42, the driver controller 46 shall be performed. A servo etc. separate by disturbance etc., for example at the time of playback of the disk 51, If it is made to return the reproduction motion to a disk within the period when read data is accumulated to the buffer memory 42 even when it becomes impossible for the signal from a disk to read, it will become possible to maintain the serial continuity as regenerative data.

[0052]In the RF signal processing circuit 44, servo control signals, such as a focus error signal for the servo control to the RF signal as regenerative data and the deck part 5 and a tracking error signal, are generated by performing necessary processing about the read signal from the disk 51, for example. An RF signal is binary-ized by the binarization circuit 43 as mentioned above, and is inputted into MD-DATA2 encoder / decoder 41 as digital signal data. The generated various servo control signals are supplied to the servo circuit 45. In the servo circuit 45, necessary servo control in the deck part 5 is performed based on the inputted servo control signal.

[0053]In this example, it has the encoder / decoder 47 corresponding to MD-DATA1 format, encoding the record data supplied from the video-signal-processing part 3 according to MD-DATA1 format, and recording it on the disk 51 -- or, About what is encoded according to the MD-DATA1 format, the read data from the disk 51 performs the decoding, and is made possible [also carrying out a transmission output to the video-signal-processing part 3]. That is, as a video camera of this example, it is constituted so that compatibility may be acquired about MD-DATA2 format and MD-DATA1 format. Let the driver controller 46 be the functional circuit unit for controlling the media drive part 4 in the gross.

[0054]Let the deck part 5 be a part which consists of a mechanism for driving the disk 51. Although not illustrated here, in the deck part 5, it is assumed that it has a mechanism (disk slots 203 (refer to drawing 6)) in which the disk 51 with which it should be loaded was made removable, could exchange according to a user's work, and was made. It will be the requisite that the disk 51 here is a magneto-optical disc corresponding to MD-DATA2 format or MD-DATA1 format.

[0055]In the deck part 5, it rotates by CLV with the spindle motor 52 which rotates the disk 51 with which it was loaded by CLV. To this disk 51, a laser beam is irradiated by

the optical head 53 at the time of record/playback. In order for the optical head 53 to perform the laser output of a high level for heating a recording track to Curie temperature at the time of record and for a magnetic Kerr effect to detect data from catoptric light at the time of reproduction, the laser output of a low is performed comparatively. For this reason, although a detailed graphic display is omitted here, the detector for detecting the optical system which consists of a laser diode, a polarization beam splitter, an object lens as a laser output means, etc., and catoptric light is carried in the optical head 53. It is held so that displacement in the direction which attaches and detaches on a disk radial and a disk, for example with a biaxial mechanism is possible as an object lens with which the optical head 53 is equipped.

[0056]On both sides of the disk 51, the magnetic head 54 is arranged at the optical head 53 and the position which counters. The magnetic head 54 performs operation which impresses the magnetic field modulated with record data to the disk 51. Although not illustrated, in the deck part 5, it has the thread mechanism driven with the thread motor 55. When this thread mechanism drives, the optical head 53 above-mentioned whole and the magnetic head 54 are made movable to a disk radial.

[0057]The final controlling element 7 is equivalent to each handler 300 shown in drawing 6 - 311 grades, and the various operation information of the user by these handlers is supplied to the video controller 38. The video controller 38 supplies operation information for required operation according to user's operation to be performed in each part, and control information to the camera controller 25 and the driver controller 46.

[0058]The external interface 8 is formed in order to enable mutual transmission of data with the video camera concerned and external instrument, for example, as shown in a figure, it is formed to between I / field terminal T3, and a video-signal-processing part. Although not limited as the external interface 8 especially here, IEEE1394 etc. should just be adopted, for example. For example, when the video camera of this example is connected with external digital image apparatus via I / field terminal T3, it becomes possible to record the picture (sound) photoed with the video camera on external digital image apparatus. It also becomes possible to record on the disk 51 according to MD-DATA2 (or MD-DATA1) format by incorporating the picture (sound) data etc. which were played by external digital image apparatus via the external interface 8. It becomes possible to also incorporate and record the file as text used for insertion of a caption, etc., for example.

[0059]The power source block 9 supplies the power supply voltage of a necessary level to each functional circuit unit using the DC power supply generated from the DC power supply or commercial alternating current power obtained by a built-in battery. According to operation of the main dial 300 mentioned above, the video controller 38 controls the power turn/OFF by the power source block 9. The video controller 38 performs emission operating of the indicator 206 during recording operation.

[0060]4. Explain the detailed composition which extracted the functional circuit unit corresponding to MD-DATA2 as the composition of a media drive part, then composition of the media drive part 4 shown in drawing 4 with reference to the block diagram of drawing 5. In drawing 5, although the deck part 5 is shown with the media drive part 4, since drawing 4 explained the internal configuration of the deck part 5, drawing 4 and identical codes are attached and explanation is omitted here. Identical codes are given to the range which is equivalent to the block of drawing 4 in the media drive part 4 shown in

drawing 5.

[0061]the information (photoelectric current acquired by a photodetector detecting a laser reflection) which was alike by the data reading operation to the disk 51 of the optical head 53, and was detected is supplied to RF amplifier 101 in the RF signal processing circuit 44. In RF amplifier 101, from the inputted detection information, the regenerative RF signal as a regenerative signal is generated, and the binarization circuit 43 is supplied. The binarization circuit 43 acquires the digital-signal-ized regenerative RF signal (binarization RF signal) by performing binarization about the inputted regenerative RF signal. This binarization RF signal is supplied to MD-DATA2 encoder / decoder 41, and after a gain adjustment, a clamping process, etc. are first performed via AGC / clamp circuit 103, it is inputted into an equalizer / PLL circuit 104. In an equalizer / PLL circuit 104, equalizing processing is performed about the inputted binarization RF signal, and it outputs to Viterbi decoder 105. The clock CLK in sync with a binarization RF signal (RLL (1, 7) code sequence) is extracted by inputting the binarization RF signal after equalizing processing into a PLL circuit.

[0062]The frequency of the clock CLK is equivalent to the present disk rotational speed. For this reason, in the CLV processor 111, the clock CLK is inputted from an equalizer / PLL circuit 104. By comparing with the reference value corresponding to a predetermined CLV speed (refer to drawing 3), error information is acquired and this error information is used as a signal component for generating spindle error signal SPE. The clock CLK is used, for example as a clock for the processing in necessary digital-disposal-circuit systems including the RLL (1, 7) demodulator circuit 106.

[0063]Viterbi decoder 105 performs decoding processing according to what is called a Viterbi decoding method about the binarization RF signal inputted from the equalizer / PLL circuit 104. By this, the regenerative data as a RLL (1, 7) code sequence will be obtained. This regenerative data is inputted into the RLL (1, 7) demodulator circuit 106, and let it be the data stream to which the RLL (1, 7) recovery was given here.

[0064]Writing is performed to the buffer memory 42 via the data bus 114, and the data stream obtained by the recovery processing in the RLL (1, 7) demodulator circuit 106 is developed on the buffer memory 42. Thus, the data stream developed on the buffer memory 42 is received, First, according to a RS-PC method, error correction processing by an error correction block unit is performed by the ECC processing circuit 116, and descrambling processing and EDC decoding (error detection processing) are further performed by descrambling / EDC decode circuit 117. The data in which old processing was performed is set to regenerative data DATAp. This regenerative data DATAp is a transfer rate according to the transfer clock generated in the transfer clock generation circuit 121, and will be transmitted, for example from descrambling / EDC decode circuit 117 to data processing / system control circuit 31 of the video-signal-processing part 3.

[0065]The transfer clock generation circuit 121 the clock of a crystal system, for example The data communications between the media drive part 4 and the video-signal-processing part 3, When performing the data communications between the functional circuit units in the media drive part 4, it is considered as the part for generating the transfer clock (data transfer rate) of the frequency suitably made proper. According to the operating state of the video camera concerned, the clock of the necessary frequency which should be supplied to each functional circuit unit of the media drive part 4 and the video-signal-processing part 3 is generated.

[0066]The detection information (photoelectric current) read from the disk 51 by the optical head 53 is supplied also to the matrix amplifier 107. By performing necessary data processing about the inputted detection information in the matrix amplifier 107, Tracking error signal TE, focus error signal FE, the groove information (absolute address information currently recorded on the disk 51 as a wobbled groove WG) GFM, etc. are extracted, and the servo circuit 45 is supplied. That is, tracking error signal TE and focus error signal FE which were extracted are supplied to the servo processor 112, and the groove information GFM is supplied to the ADIP band pass filter 108.

[0067]The groove information GFM band-limited with the ADIP band pass filter 108 is supplied to the A/B track detector circuit 109, the ADIP decoder 110, and the CLV processor 111. In the A/B track detector circuit 109, based on the method etc. which were explained, for example by drawing 2 (b), From the inputted groove information GFM, the track traced now distinguishes being considered as any of track TR-A and TR-B, and outputs this track discriminating information to the driver controller 46. In the ADIP decoder 110, the inputted groove information GFM is decoded, the ADIP signal which is the absolute address information on a disk is extracted, and it outputs to the driver controller 46. In the driver controller 46, necessary control management is performed based on the above-mentioned track discriminating information and an ADIP signal.

[0068]The groove information GFM through the ADIP band pass filter 108 is inputted into the CLV processor 111 as the clock CLK from an equalizer / PLL circuit 104. In the CLV processor 111, based on the error signal acquired by integrating with a phase error with the clock CLK to the groove information GFM, for example, spindle error signal SPE for CLV servo control is generated, and it outputs to the servo processor 112. The necessary operation which the CLV processor 111 should perform is controlled by the driver controller 46.

[0069]Tracking error signal TE into which the servo processor 112 was inputted as mentioned above, Focus error signal FE, spindle error signal SPE, the track jump instructions from the driver controller 46, Based on access instructions etc., various servo control signals (a tracking control signal, a focus control signal, a thread control signal, a spindle control signal, etc.) are generated, and it outputs to the servo driver 113. In the servo driver 113, a necessary servo drive signal is generated based on the servo control signal supplied from the servo processor 112. As a servo drive signal here, it becomes a 2 axis drive signal (two sorts, a focusing direction and a tracking direction) which drives 2 axis mechanisms, a thread motor driving signal which drives a thread mechanism, and a spindle motor driving signal which drives the spindle motor 52. By such a servo drive signal being supplied to the deck part 5, the focus control and tracking control to the disk 51, and CLV control to the spindle motor 52 will be performed.

[0070]When recording operation is performed to the disk 51, for example, the record data DAT Ar will be inputted to scramble / EDC encode circuit 115 from data processing / system control circuit 31 of the video-signal-processing part 3. This user record data DAT Ar is inputted synchronizing with the transfer clock (data transfer rate) generated in the transfer clock generation circuit 121, for example.

[0071]In scramble / EDC encode circuit 115, the record data DAT Ar is written in the buffer memory 42, for example, it develops, and data scramble processing and EDC encoding processing (attached processing of the error detection codes by a predetermined method) are performed. The error correction code by a RS-PC method is added by after [

116] this processing (for example, an ECC processing circuit) to the record data DAT Ar which the buffer memory 42 is made to develop. The record data DAT Ar to which the processing so far was performed is read from the buffer memory 42, and is supplied to the RLL (1, 7) modulation circuit 118 via the data bus 114.

[0072]In the RLL (1, 7) modulation circuit 118, a RLL (1, 7) modulation process is performed about the inputted record data DAT Ar, and the record data as this RLL (1, 7) code sequence is outputted to the magnetic head driving circuit 119.

[0073]By the way, in the MD-DATA2 format, what is called a laser strobe magnetic-field-modulation method is adopted as a recording method to a disk. A laser strobe magnetic-field-modulation method impresses the magnetic field modulated with record data to a disk recording surface, and it means the recording method to which pulse radiation of the laser beam with which a disk should be irradiated is carried out synchronizing with record data. In such a laser strobe magnetic-field-modulation method, the morphosis of the pit edge recorded on a disk is not dependent on transient characteristics, such as a reversal speed of a magnetic field, and is determined by the irradiation timing of a laser pulse. For this reason, it compares with a simple magnetic-field-modulation method (method it was made to impress the magnetic field which it irradiated with the laser beam regularly to the disk, and was modulated with record data to a disk recording surface), for example, In a laser strobe magnetic-field-modulation method, it is easily made possible to make the jitter of a record pit very small. That is, let a laser strobe magnetic-field-modulation method be a recording method advantageous to high-density-recording-izing.

[0074]In the magnetic head driving circuit 119 of the media drive part 4, it operates so that the magnetic field modulated with the inputted record data may be impressed to the disk 51 from the magnetic head 54. The clock which synchronized with record data from the RLL (1, 7) modulation circuit 118 to the laser driver 120 is outputted. Based on the inputted clock, the laser driver 120 drives the laser diode of the optical head 53 so that the laser pulse synchronized with the record data generated as a magnetic field by the magnetic head 54 may be irradiated to a disk. Under the present circumstances, as a laser pulse by which a radiant power output is carried out from a laser diode, it is based on the necessary laser power which suits record. Thus, recording operation as the above-mentioned laser strobe magnetic-field-modulation method is made possible by the media drive part 4 of this example.

[0075]5. Explain the example of disk structure corresponding to this embodiment, next the constructional example of the disk 51 corresponding to this embodiment. Drawing 7 shows notionally the constructional example of the disk 51 it is supposed that is corresponded to this embodiment. It is as drawing 1 and drawing 2 having explained previously the physical format of the disk 51 shown in this figure.

[0076]In the disk 51, the field of PTOC and RTOC is provided as management information area, for example. As for PTOC, necessary management information is recorded by the pit gestalt, for example in the prima starred area (pit area) of the disk most inner circumference. The contents of this PTOC are made impossible [rewriting]. For example, the magneto-optical recording field whose magneto-optical recording reproduction is enabled is formed in the periphery of the prima starred area where the above-mentioned PTOC is recorded. And it shall be first provided in the field of the above-mentioned RTOC to the section of the prescribed size in the most inner

circumference. Fundamental information required for this RTOC to manage the data recorded, for example on the disk is recorded. For example, if it is a case of this example, the information for managing the track (in the case of a file and homonymy, it is *****) mentioned later and a folder (structure for carrying out grouping of the track and managing it) as data recorded on the disk at the time of record reproduction is stored. According to editing processing results, such as a record result of the data to the disk of the former [contents / of U-TOC in management areas] for example, and deletion of a track (file) and a folder, it shall be carried out in rewriting one by one.

[0077]A data area for an user datum to be recorded is provided to the periphery side of the above-mentioned RTOC. According to this embodiment, this data area is managed as the volume folder (Volume Folder) placed into one route folder. It defines as a perfect set of an user datum, and this embodiment is specified on the disk of one sheet as volume (Volume) as that in which only one volume exists. And the data contained in this volume will be stored as the folder and track below a volume folder except for what is managed by the above-mentioned PTOC and RTOC.

[0078][in a volume folder], the volume index track (Volume Index Track) of prescribed size (for example, 12 clusters) is first placed in the position (management TORATSU priority region near the RTOC) by the side of the most inner circumference physically. This volume index track will be what is specified as a field where submanagement information is recorded so to speak, if the above-mentioned PTOC and RTOC make it the main target management information, for example, It has a table where the information for managing a ***** property, a title, and the packet data that form a track is recorded on a track (file), a folder, and ancillary data (Auxiliary Data).

[0079]Arrangement of a thumbnail track (ThumbnailPicture Track) is enabled as an option as a track recorded as the first one cluster is located in the management track priority region near the RTOC at least. In this embodiment, it is supposed that it is possible to have the still picture of one sheet which was recorded on the disk and which matched for every file and was reduced by prescribed resolution as a thumbnail image. A thumbnail image is treated as a representative picture image for enabling recognition of a file visually. It is recorded on a thumbnail track with the index information data matching with the file (track) currently recorded on the disk and the storing position of a thumbnail image are indicated to be. Data length of a thumbnail track is arbitrarily made extensible according to the number of thumbnail images etc. which are stored.

[0080]And the picture/voice data which the user recorded by photography etc., for example will be managed by a file basis, and will be placed into the folder which is placed under a volume folder as a track, or is placed into a volume folder below at a volume folder. In the disk of this embodiment, text files, such as a document besides dynamic image data, still picture data, and voice data, are also storable as a file (track). By drawing 7, after one certain file is expressed as one track, the state where this track is stored in one certain folder is shown. A folder is the structure for summarizing a track or a folder in one group, and managing it as mentioned above. Therefore, in the structure below a volume folder, arbitrary numbers of tracks or folders will be stored within limits specified with the maximum number storable in a volume folder, and the maximum number of stages of the layered structure of a folder.

[0081]In a volume folder, the auxiliary data tracks (Auxiliary Data Track) in which ancillary data (Auxiliary Data) is stored are arranged. As information which should be

stored in auxiliary data tracks, it is supposed by the application actually applied, for example that it is arbitrary. In this embodiment, the information on the script as reproduction control information will be stored.

[0082]By the way, information stored in PTOC and RTOC which are the above-mentioned management information, and also a volume index track (even if it names the information on these generically) saying ["management information"] at this embodiment -- carrying out -- for example, it is read at the time of disk charge, for example, is held in the predetermined region of the buffer memory 42 (or buffer memory 32) of the media drive part 4. And at the time of Data Recording Sub-Division and edit, it is made to rewrite about these management information currently held at the buffer memory according to the record result and edit result, then, the management information of the disk 51 is rewritten based on the contents of the management information currently held at the buffer memory as a predetermined opportunity and timing are also (it updates) -- it is made like (however, updating is not performed about PTOC).

[0083]The example of disk structure shown in this figure is an example to the last, the physical location relation of each area on a disk may be changed according to a actual service condition etc., and the structure where data is stored may also be changed.

[0084]6. Although the thumbnail image stored in the thumbnail track shown in thumbnail image generation processing above-mentioned drawing 7 is made possible [generating with the video camera of this embodiment], it explains the generation processing of the thumbnail image here. The case where the thumbnail image about the graphics file once recorded on the disk here is generated is explained.

[0085]As mentioned above, for example, the management information (PTOC, RTOC, volume index track) currently recorded on the disk 51 shall be read to the predetermined timing at the time of disk charge, etc., and it shall be stored to the buffer memory 42 (or buffer memory 32).

[0086]And the driver controller 46 refers to the management information stored in the buffer memory 42, for example, It asks for the address on the disk with which the image data specified as a thumbnail image is recorded about the file which should generate a thumbnail image from this, By accessing this address and performing read operation to a disk, the image data as a generator of a thumbnail image is obtained. This image data is transmitted to the video-signal-processing part 3 from the media drive part 4 one by one, and is supplied to data processing / system control circuit 31. If the image data specified as a generator of a thumbnail image by management information does not have special specification, it shall be specified, for example in the frame (or field) image data of the head in a file. [0087]And in data processing / system control circuit 31. The expansion process which controlled the MPEG 2 video signal processing circuit 33, and followed the MPEG 2 format first about the supplied picture data is performed, and the data decoded even on the level of the image data of field drawing image units is gained.

[0088]For example, in the stage of the image data decoded by even the level of the above-mentioned field drawing image units, it is usually considered as data only with the image size (pixel number) mostly displayed with a full size to a display screen. Then, after the full-sized image data based on the above-mentioned field drawing image units is obtained, a reducing process will be performed about this full-sized image data, and it will process so that the size of the thumbnail image actually needed may be obtained. What is necessary is to perform the sampling to picture element data to suitable timing,

and just to perform signal processing, for example to the original full-sized image data, for reduction of such image size, so that image data may be reconstructed with this sampled picture element data.

[0089]And the video controller 38 generates the index information data (drawing 7 explains) about the thumbnail image data produced by doing in this way, and it performs control, for example so that this thumbnail image data may be recorded on the thumbnail track of a disk with these index information data. Thus, the thumbnail image data corresponding for every file is obtained, and it is recorded on a disk.

[0090]As this embodiment, the voice data only based on a sound besides image data (voice data is included), character information, etc. being recordable as a file is used so that old explanation may show, but. For example, when there is no image data which serves as a generator of a thumbnail image in the file, such as voice data and character information. For example, the image data of the pattern which can recognize visually that they are voice data and character information beforehand is prepared (for example, it stores in ROM of the video controller 38, or). What is necessary is just to use this image data as a thumbnail image that what is necessary is just to store in the predetermined region of a disk.

[0091]7. In a script outline and this embodiment, editing processing, such as giving necessary special effects at the time of the reproduction-orders specification and playback about a file (mainly recording file) which were recorded with the video camera concerned, can be performed. The above edits in carrying out in this embodiment. In [prepare the script as reproduction control information which can give a necessary reproducing output mode about a recording file, and] a video camera, For example, the reproducing output mode (for example, reproduction orders) according to an edit result is obtained because the video controller 38 interprets this script. In an edit stage, it is constituted so that editing processing may be performed by updating the contents of the script. A "script" here has the procedure writing structure described by predetermined program language said, in order to carry out the reproducing output of dynamic image data, still picture information, voice data, the document data, etc. to simultaneous timing.

[0092]Then, the script used as reproduction control information in this embodiment is explained roughly first.

[0093]As this embodiment, SMIL (Synchronized MultimediaIntegration Language) shall be adopted as a script. With SMIL, in order to realize the TV program broadcast on the Internet, a presentation, etc., for example, It is the language with which standardization is performed by W3C (standardization organization of the Internet), and is going to realize a serial presentation etc. based on the grammar of XML (superset of HTML).

[0094]First, scheduling is expressed by two tags, <seq> and <par>. <seq> will mean sequential, i.e., series, and the information surrounded with this tag will be reproduced by time order. <par> means parallel, i.e., parallel, and the information surrounded with this tag will synchronize and will be reproduced.

[0095]When it specifies that it plays in order of video1 ->video2 ->video3 about the file of the image data expressed as video1, video2, and video3 in the file it is supposed here

```

                                <seq>
                                <video src="video1">
                                <video src="video2">
                                <video src="video3">
                                </seq>
that is recorded, for example on the disk,

```

```

    <seq>
    <play video1>
    <play video2>
    <play video3>
or </seq>

```

** -- it is made like and description is performed.

[0096]When reproducing in order of file video1 ->video2 ->video3, and audio1 which is a file of voice data is used as a postrecording track and simultaneous reproduction is

```

                                <seq>
                                <par>
                                <video src="video1">
                                <audio src="audio1">
                                </par>
                                <video src="video2">
                                <video src="video3">
                                </seq>
carried out to video1,

```

** -- it will be made like and description will be performed.

[0097]The description for specifying this file of a certain being reproduced and making it reproduce from the position of how many seconds after about a certain file and the file which should carry out synchronous reproduction etc. is also prepared. For example, when it seems that a caption (for example, picture as text) is displayed 5 seconds after the graphics file of video1 is displayed (reproduction). <-- par --> --<-- video src -- = -- " - video -- one -- " --> --<-- image src -- = -- " -- scratch -- one -- " -- begin -- = -- " -- five -- s -- " --> --<-- /-- par --> -- like -- carrying out -- description -- carrying out -- having -- ***** .

[0098]If it directs to display file picture1 as a still picture file for 5 seconds, for example, it will carry out like <image src="picture1" dur =" 5-s">, and will be described.

[0099]It uses "range", in reproducing, as a part of what is called frame mute flume crack and a certain dynamic image file are extracted. For example, noting that the standard of SMPTE (Society of Motion Picture and Television) is adopted as a time code, It can carry out like <video src="video1"range=" smpte:10:07:00-10:07:33">, and can describe.

[0100]"repeat" is used although repeated by specifying a certain file. For example, if the file of video1 is repeated 10 times, it will carry out like <video src ="video1"repeat ="10">, and will describe.

[0101]And in this embodiment, such a script called SMIL is used and it is constituted so that execution of the display control for giving a necessary display style as a thumbnail indication is possible. For this reason, for example in the video camera system of this

embodiment, the subset of XML will be prepared so that interpretation corresponding to this SMIL and description (generation) of a script can be performed. What is necessary is just to enable it to read this by storing in ROM in the video controller 38, etc. beforehand, or recording on them to the application layer of a disk as a program which the video controller 38 should execute, for example.

[0102]In this embodiment, for example in an edit stage (or stage where recording operation is performed), the video controller 38 shall perform generation or updating, and such a script shall be held in the predetermined region in the buffer memory 32, for example. And it is made it to be recorded on a disk for that a predetermined opportunity or timing is also about the script which did in this way and was held at the buffer memory 32. The data of this script will be stored as a script file to the auxiliary data tracks (Auxiliary Data Track) explained by drawing 7. Thus, by a script being recorded on a disk, when it next newly loads with this disk, It becomes possible to perform edit playback etc. according to the reproduction orders etc. which were obtained by former edit by reading the script recorded on this disk, for example, making it hold to the buffer memory 32, and referring to this.

[0103]8. Explain the creation function (edit function) of the image work of the creation function 8-1. outline of the image work of this embodiment, then this embodiment. In the creation function of the image work of this embodiment, the application program for edit (an input instruction program and an edit program) is prepared. The application program for this edit is considered as the program for editing the image work of a certain specific genre, and it is made to have an image work created according to the scenario set up beforehand. Specifically at the time of photography of the sauce (recording file) which serves as a raw material of an image work first, the alter operation and photography which are needed are suitably demanded from a user by displaying GUI as a guide function based on the above-mentioned scenario. The information (text is included) acquired by the alter operation performed according to this GUI and the recording file (file of a picture/voice data) obtained by photography are treated as edit material information. And an image work is created by performing edit using the above-mentioned edit material information as actual editing processing according to the above-mentioned scenario structure. However, in this embodiment, direct edition processing is not performed to the photoed recording file on the occasion of editing processing, The reproduction orders of a recording file and specification of various editing effects (for example, insertion of a superimposed title or BGM) are performed by the script mentioned above, and interpreting this script and performing necessary signal processing suitably performs edit playback in a video camera.

[0104]The application program for this edit shall be recorded in this embodiment as one file (track) to a disk. And the file and script file which were recorded by the guide function of the application program for this edit are also recorded on this same disk. By that is, the thing for which the application program for the edit for the image work according to a certain specific purpose is recorded on a disk, and the data as a raw material required for this edit and a script are made recordable in this embodiment. The disk in which it specialized in order to create the image work of this specific genre and to play is provided. About the application program for edit, nonvolatile memory is provided, for example in the video camera side, and also making this memorize to this nonvolatile memory is considered. That is, it is possible to constitute so that the video camera itself

may be provided with the function for creating the image work of a certain specific genre. [0105]8-2. Suppose the information inputting and photography according to a guide function, then henceforth that the process of creation of the image work in this embodiment is explained in accordance with one example. Here, the case where the pattern of a golf competition is created as an image work as an example is mentioned as an example. Therefore, the program for edit for golf competitions will be recorded, and the user in this case will prepare the disk in which it specialized for image work creation of a golf competition. Suppose that the case where three users of Mr. A, Mr. B, and Mr. C perform a golf competition here is mentioned to an example. Henceforth, when it is called a "user", those of Mr. A, Mr. B, and Mr. C who treat the video camera concerned in which at least will be pointed out.

[0106]First, by drawing 8 - drawing 10, while a user performs a golf competition, the procedure example for performing information inputting (the input of operation information and photography of an edit raw material) for edit is explained. In subsequent explanation, although an alter operation compatible program is shown if needed one by one, This program is considered as the program in the case of carrying out composition correspondence in which the master controller (video controller 38) of the video camera concerned carries the system which can understand a JAVA language. Then, the variable definition in the example of the book in this program and the class definition are shown here previously.

```
int: Integer video : the reference to a video track. Variable class Party {video to hold.
begincomment;// course. The comment before turning. Reference String to the photoed
video track. Name int of name;// party member. Handicap [ of handycap;// party member
] . The score of all the holes of nature int score[18];// party member of reference int
teeshot_quality;// start hole tee shot to the video track of video teeshot;// start hole tee
shot}
```

```
class Hole {int par;
float length;
}
class Track {video track;
int type;
int hole;
int shotnumber;
int shotttype;
int personnumber;
}
```

```
Hole of name Party party[information Track track[ of the member for the number of];//
party ] [];// track photoed freely of number String course;// course of variable list int
numberofparty;// party. the information on hole[];// this course (18 holes)
```

[0107]For example, a user (Mr. A, Mr. B, Mr. C) carries the video camera of this embodiment, and the disk (it is only henceforth called "the disk for golf") of this embodiment in which it specialized for golf competition image work creation, and is made to go to the target golf course. And in the stage before going around [a course], for example on a golf course, a video camera is loaded with the disk for golf, and the guide function display of the application program for edit currently recorded on the disk by prescribed operation is operated. The program for edit is chosen according to the

predetermined operating procedure for the usual file reproduction, and it is made to be reproduced as operation for this, for example. Thereby, the program for edit will be started and the menu screen of the program for edit is displayed first, for example. And a user operates it to this menu screen, and is made to have a guide function display called. [0108]By this, the guide display shown in drawing 8 according to the program for edit will be performed, for example to the indicator 6A. Let the guide display shown in this drawing 8 be a thing for inputting a variety of information required for edit before a round.

[0109]Here, the display first shown in drawing 8 (a) is performed as a guide display for the preparation input before a round. Let the guide display of drawing 8 (a) be a thing for inputting the number which goes around [a course]. In this case, since it is three persons, a user performs operation for inputting that they are three persons to a ** N screen. As an operating procedure at this time, since the button of "two persons", "three persons", "four persons", and "five persons" and the input window of the "more than it person" are displayed, for example, for example a user, A cross joint / click key 310 is operated, cursor (not shown) is arranged on the button of "three persons", and click operation to the center portion of a cross joint / click key 310 is performed in this state. That is, the button of "three persons" is chosen and click operation is performed. Thereby, the information that the number around [number] it goes is three persons is inputted. As a program according to this alter operation, it is numberofparty=3, for example.;

** -- it becomes like. What is necessary is to be saved since it is used for creation of the script mentioned later, but just to constitute description of such a program shown henceforth for example one by one, so that it may record to the predetermined directory of a disk. Or storing in the predetermined region of the memories (for example, buffer memory 42 etc.) inside a video camera, and holding is also considered.

[0110]If click operation is performed to the button which the alter operation to the guide display of drawing 8 (a) is completed, for example, is displayed as the "next", it will change to the guide display shown in drawing 8 (b). Photography of the scene where every member is telling ambition is urged to the guide display of drawing 8 (b). For example, after changing into the state where the present image pick (it is the picture signal acquired by the present lens block 1 and the camera block 2) is displayed here, The character representation (superimposed title) to which photography of the member who tells ambition is urged like "photograph today's person's [1st] ambition in about 5 seconds", and the imposing display of the "photography specification frame" which specifies the composition of the member who becomes a photographic subject are performed. This "photography specification frame" is displayed in order to specify composition ideal about the photographic subject as a variety raw material, and an indication is not given at the time of actual edit reproduction (the above-mentioned character representation is also the same). A user is made to perform photography of one member who tells ambition in about 5 seconds by the composition that that member is settled in a photography specification frame almost exactly, monitoring the indicator 6A to which this display is performed. It is saved by video1 and a file name being attached, for example and being recorded on a disk, and the recording file (video/voice file) photoed here is party[0].begincomment=video1 by a program.;

** -- correlation that it is a comment before the 1st person's round is performed in form [like].

[0111]Here, supposing a certain one member's photography is completed, it shall be carried out in the display shown in drawing 8 (c) as a guide display. That is, it is asked whether the image photoed now is convinced for a user. By and click operation [as opposed to the button of "improving" at this stage]. Photography in the state of the guide display shown in drawing 8 (b) can be again resumed by the click operation to the button can reproduce and check the picture photoed now, and "will be restarted" if it was photographing results which are not satisfactory. If the photoed picture is satisfactory for a user as a result, it will escape from the guide display of drawing 8 (c) by prescribed operation, and will be made to shift to the guide display shown in drawing 8 (d) here.

[0112]In the guide display shown in drawing 8 (d), a name, a handicap, etc. can perform a character input now to the item actually prepared as an inputted item beforehand as information about the member who took a photograph now. According to this embodiment, a character input can be performed now using the jog dial 311 shown in drawing 6. It shall be displayed in this guide display in a member's mug shot. The picture of this mug shot is acquired by generating a thumbnail image from the image data of the file which recorded the scene where ambition was told previously. Such processing shall perform automatically by the program for edit. And if the character input to a required item is completed, click operation to the "O.K." button will be performed, for example. If the character input about a member photoed, for example to eye one person was performed as a program at this time, it will be party[0].name= "Mr. A".;

```
party[0].handicap=20;
```

**** -- it is made like and a member's name and a handicap are registered.**

[0113]If the photography of a scene which still tells the ambition about all members is not completed, it can be made to return to drawing 8 (b), although it is a guide display which shifts when click operation to the above-mentioned "O.K." button is performed here. In this case, since there are three members, a user is made to repeat the procedure explained by drawing 8 (b) -> drawing 8 (c) -> drawing 8 (d) 3 times. Thus, at the stage which the photography of the scene which tells the ambition about all members completed, it is party[1].begincomment=video2 as a program.;

```
party[2].begincomment=video3;
```

**** -- the character input [as opposed to / make it like, and the 2nd person and the recording file which told the 3rd member's ambition are registered as video2 and video3, and / the guide display of drawing 8 (d)] about the 2nd person and the 3rd member --**

```
party[1].name=" -- Mr. B -- ";
```

```
party[1].handicap=8;
```

```
party [2] .name= "Mr. C";
```

```
party[2].handicap=15;
```

**** -- it is made like and correlation is performed.**

[0114]When the "O.K." button shown in drawing 8 (d) is operated after the procedure explained as mentioned above by drawing 8 (b) -> drawing 8 (c) -> drawing 8 (d) was repeated by all members, it shifts to the guide display of drawing 8 (e).

[0115]In the guide display of drawing 8 (e), the course selection around [selection] it goes from this is made to be performed. For this reason, the candidate of the course of a golf course is displayed in the guide display shown in drawing 8 (e). It shall be stored as a database in the program for edit, and, as for the course of the golf course displayed here as a candidate, information, including the number of holes for every course, the number

of yards for every hole (distance), the number of pars, etc., is stored in this database, for example. On the guide display shown in drawing 8 (e), a user is operating a cross joint / click key 310, for example, chooses the course of the golf course around [golf course] it goes from this, and performs click operation (determining operation). Here, selection decision of the "Kashiwa country club" should be carried out as a course of a golf course. Thereby, as a program, it is course= "Kashiwa country club".;

** -- it will be made like and registration will be performed.

[0116]As mentioned above, this program for edit has a data base of a course, in this case, if it is it, will be that the Kashiwa country club was registered as mentioned above, and will become accessible to the data of an overall length, the number of pars, etc. to all the holes of the Kashiwa country club. About these databases, access is possible from a variable like hole[?].parhole[?].length as a program. When it carries out like old explanation and the alter operation (drawing 8 (e)) to course selection is completed, in this case, For example, as it is shown in the guide display of drawing 8 (f), a telop like "being a preparation completion before a round" is displayed, and it enables it to tell a user about all the alter operation as preparation before a round having been completed.

[0117]Then, the procedure of the user who followed this with the guide display in a round by drawing 9 and drawing 10 is explained. For example, after the end of alter operation shown in above-mentioned drawing 8, a guide display as shown in drawing 9 (a) is performed, and directions are performed so that the tee shot of the 1st hole may be photoed. And in the guide display of drawing 9 (b) displayed continuously, it is urged to the operation for choosing the member who becomes a photographic subject. Each member's mug shot is displayed also by the guide display of this drawing 9 (b) using the thumbnail image generated from the image data of the file which recorded the scene where ambition was told previously. And cursor is moved to each of this member's mug shot, and it is made to perform selection decision operation.

[0118]If selection decision operation is performed to the guide display shown in drawing 9 (b), the indicator 6A will serve as a guide display shown in drawing 9 (c), For example, the photographing instruction frame which specifies composition as directions of the imaging time by the superimposed title "photograph in about 5 seconds" to the present image pick is displayed. and a user photos the place where the player is performing the tee shot in this state -- it is made like (recording operation is performed). It is the same as that of the case at the time of photography by the procedure of drawing 8 (b) -> (c) explained previously that the guide display shown "reexamination", "it restarts", and "O.K." button as it is shown in drawing 9 (d) is displayed after recording operation is ended also in this case.

[0119]And if the "O.K." button is operated in the guide display shown in drawing 9 (d) in this case, it will shift to the guide display of drawing 9 (e), and will enable it to input how much the ability of the tee shot photoed now was. Four buttons, "wonderful", ["so so"], "Thyolo", and "tempura", are shown as a candidate, and a user chooses a desired button from these buttons, and is made to have click operation (determining operation) performed here. The guide display display shown in this drawing 9 (b) -> drawing 9 (c) -> drawing 9 (d) -> drawing 9 (e) is repeated by a member's number (in this case, 3 times), and it is made to have each member's tee shot photoed. And suppose that the photography about all (three persons) members' tee shot and the input of shot evaluation were completed by the procedure according to the guide display of drawing 9 (b) -> drawing 9

(c) -> drawing 9 (d) -> drawing 9 (e). In this stage, video4, video5, video6, and a name are attached and, as for the recording file which photoed three members' tee shot, record on a disk is performed. And on a program, it is party[0].teeshot=video4.;

party[1].teeshot=video5;

party[2].teeshot=video6;

Correlation with whose shot it is is made to be performed with each recording file in the form to say. It is based on the alter operation to the guide display of drawing 9 (e), for example, is party[0].teeshot_quality=OK.;

party[1].teeshot_quality=GREAT;

party[2].teeshot_quality=CHORO;

Shot evaluation is registered in the said form. in this case -- Mr. A's shot -- "-- so so -- click operation to (O.K.)" button being performed and, The result to which click operation [as opposed to / shot / of a button "wonderful (GREAT)" and Mr. C / the "Thyolo (CHORO)" button in Mr. B's shot] was carried out is reflected.

[0120]Completion of the procedure concerning a tee shot as mentioned above will perform henceforth the guide display shown in drawing 9 (f), for example. in this guide display, it is urging that a user photos a favorite scene arbitrarily henceforth (here -- recording **** of an image pick -- it is synonymous with things). And the "scenery" button corresponding to photography of scenery, the "comment" button corresponding to photography of the scene which the player comments, and the "shot" button corresponding to photography of shots more arbitrary [subsequent] than a tee shot are prepared as a candidate of that photographing content in this case. A user chooses any of this button they are, and is made to have click operation performed according to contents to photo from this.

[0121]If click operation to a "scenery" button was performed under the guide display shown in above-mentioned drawing 9 (f), a guide display becomes a thing of the contents to which photography of scenery as shown in drawing 10 (a) is urged, for example. Here, the telop "photographing scenery"" is displayed to the present image pick. The user should just photo the target scenery, seeing the indicator 6A as which this guide display is displayed, and monitoring an image pick.

[0122]If click operation to a "comment" button was performed on the guide display shown in drawing 9 (f), the guide display display for photoing the scene which the player as shown in drawing 10 (b) comments is performed. An imposing indication of the photography specification frame for this guide display to also decide composition to be the telop "photograph a comment", for example to the present image pick is given. A user photos the user who comments, monitoring on this guide display. in addition -- facing photography of a "comment", although not illustrated here -- drawing 9 (b) -- semi- ** -- alter operation for specifying the photography of the comment of which player it is by displaying a guide display [like] shall also be performed

[0123]Or if click operation to a "shot" button was performed on the guide display shown in drawing 9 (f), it shifts to the guide display shown in drawing 10 (c). The hole number to which the shot photoed from this is carried out in this guide display, the display for urging the input of the number of times at bat in that hole, and the button display for inputting the kind of shot (here, a "tea", "iron", "trouble", and "putt" button is prepared.) Although a graphic display is omitted also here, the guide display which applies, for example to drawing 9 (b) is taken out, and it is urged to the alter operation for specifying

of which player it is a shot. And if the alter operation to the guide display of drawing 10 (c) is completed, As it is shown in drawing 10 (c), the guide display imposed on the telop to which it urges photoing the shot of a player in about 5 seconds, and the photography specification frame by the image pick is displayed, and a user is made to have a shot photoed. In order to avoid duplication of explanation, are omitting here, but. Also in this case, when photography of the shot of a player is completed, it improves and the guide display for retaking and the guide display which inputs evaluation of a shot as shown, for example in drawing 9 (d) and (e) may be made to be displayed. And a user is made to have the procedure explained by above-mentioned drawing 9 (f) - drawing 10 (d) during the play if needed repeated.

[0124]Here, the example of the contents of a program acquired by the procedure of above-mentioned drawing 9 (f) - drawing 10 (d) is given. First, as a thing corresponding to the case where a shot is photoed, supposing the trouble shot of Mr. A in the 2nd hit of the 4th hole is recorded as video7, for example, it is track[0].track=video7, for example.;

track[0].type=SHOT;

track[0].hole=4;

track[0].Shotnumber=2;

track[0].Shotttype=TROUBLE;//TROUBLE means a trouble shot.

track[0].personnumber=0;//party [0] is Mr. A.

** -- additional information [like] will be registered.

[0125]And supposing it is recording Mr. B's comment to this shot as video8, it is

track[1].track=video8, for example.;

track[1].type=COMMENT;

track[1].personnumber=0;

The method of ** will be carried out and additional information will be registered.

[0126]Supposing it is photoing scenery as video9 next it photoed above-mentioned Mr.

B's comment, it is track[2].track=video9.;

track[2].type=SCENE;

It will be shown at the time of track[2].hole=4;// what hole eye a photograph is taken, it will have, and additional information will be registered. Although the contents which show by what hole eye this scenery is photoed are included in this additional information, The information on what this hole eye it is can be guessed and recorded from this from a former photographing condition (for example, information, including the hole number etc. which were inputted from this corresponding to the shot photoed before).

[0127]And when it is guessed that predetermined alter operation (here, not shown) corresponding to the end of a play was performed, or the play was completed from the old photographing condition for example, the guide display for the score input first shown in drawing 10 (e) is performed. As opposed to this guide display, a score numerical value is inputted into a user the whole member by operating the jog dial 311. As such a score input screen can be called if needed during a play, it may be suitably constituted so that a score input may be possible. As a program compatible with the score input, it is party[0].score_hole[1]=3.;

party[0].score_hole[2]=5;

** -- it will be made like and record will be performed.

[0128]And if it is that all members' score input was completed, the guide display shown, for example in drawing 10 (f) will be displayed. This guide display display is for urging

photography of the scene where each member is commenting after the play, and in this case, The screen for choosing the member (the member's face is displayed as a thumbnail image like drawing 9 (b)) who should take a photograph from this as shown in a figure is displayed first. When operation for a user to choose the member who becomes a photographic subject on this screen is performed, for example as a guide display, It is made to be carried out in the guide display to which the photography [it was previously shown in drawing 9 (c)] for several seconds is urged, and the guide display to which the check after photography as shown in drawing 9 (d) is urged, and a user is made to have photography, the check of a recording state, retaking, etc. performed according to this display. And the same procedure is stepped on and the scene where all members are commenting is photoed. For example, supposing it photos three members' comment in order of Mr. A, Mr. B, and Mr. C and these are recorded as a recording file of file name video10, video11, and video12, respectively, As a program, it is

```
party[0].endcomment=video10.;
```

```
party[1].endcomment=video11;
```

```
party[2].endcomment=video12;
```

****** -- it is made like and is made to be carried out in the correlation to each recording file.

[0129]The recording file (a picture/speech information) which serves as program information based on the alter operation of the necessary information for image work creation and a raw material of edit as edit material information will be obtained by completion of all the old procedures.

[0130]When the guide display shown in above-mentioned drawing 8 - drawing 10 is performed, Actually, it shall be in the state where amendment to the programmed AE (Automatic Exposure) function in the lens block of the video camera device concerned is performed, based on the exposure control value stored in the application program for edit. That is, if the scenario set up as an application program for edit is followed, it can be assumed easily in what kind of situation photography for collecting edit raw materials under a guide display is performed. For example, if it is a golf competition, as a situation, a photograph will be taken outdoors. Then, the correction value over AE suitable for the photographing condition predicted is beforehand prepared for the application program for edit, and AE amendment is made to be performed by this correction value automatically at the time of photography according to a actual guide display. For example, when it corresponds to a golf competition, the correction value of AE made the best for photography on the outdoors will be prepared for the application program for edit, and programmed AE will be controlled by this amendment. Thereby, even if a user in particular does not operate program change of AE, etc., it is controlled to maintain the state in which AE program is almost the optimal, and it becomes possible to obtain the recording file as an edit raw material of image quality good as a result, for example.

[0131]8-3. Edit reproduction (reproduction as an image work)

And in the video camera device of this embodiment, editing processing for creating the image work which gets its raw material from a recording file using the input acquired by performing it above according to the scenario set up under the application program for edit is performed. This editing processing is realized by processing in which the script which specifies the reproduction timing containing the reproduction orders of each recording file, the superimposed title to the played recording file, etc. is constituted. And playback as an image work is performed by interpreting the script produced by doing in

this way, and performing Image Processing Division for playback of a recording file, grant of special effects, etc. It is made to be carried out by the created script being recorded on the auxiliary data tracks (Auxiliary Data Track) of the disk with which the application program for edit corresponding to this is stored in preservation.

[0132]Then, the example of a reproduction mode of the image work first created in the script which was explained by drawing 8 - drawing 10, and by which manual adaptation **** description was carried out is explained with reference to drawing 11 - drawing 13. The descriptive content corresponding to the example of a reproduction mode of the image work described henceforth and the generation method of a script are mentioned later.

[0133]For example, a user loads a video camera with the disk for golf edit (in this stage, the script for the recording file used as an edit raw material or edit of an image work is in the state where it is already recorded) which was being used for photography on the golf course, and is made to have the operation for playback performed. This operation is answered, in a video camera, a script is read from a disk and performing playback of a recording file, and a picture/speech signal processing, interpreting this script realizes playback of an image work as shown below.

[0134]In this case, first, an opening title as shown in drawing 11 (a) is displayed with the output of a sound effect. And if it continues, as it is shown in drawing 11 (b), the picture of member introduction is displayed. Here, the member's mug shot is displayed with the name. This member's mug shot should just use what was used by the guide display of drawing 9 (b). That is, record is performed to the thumbnail track of a disk at the time [thumbnail image / which was used for the guide display of drawing 9 (b)] of the alter operation in the spot, and photography.

[0135]If it continues, as it is shown, for example in drawing 11 (c), the scene where Mr. A tells ambition is displayed with an animation (recording file recorded as video1). In this case, since the recording file of video1 is played, the sound which Mr. A tells ambition with a sound synchronizes, and is outputted. As shown in "Mr. A who tells today's enthusiasm", it carries out here, and a character representation (superimposed title display Simp) is performed. The display of the scene where this member tells ambition is similarly performed about Mr. B and Mr. C following Mr. A (reproduction of video2 and video3).

[0136]After this, the scene of each member's tee shot is displayed. For example, as it is shown in drawing 11 (d) after the display of the comment scene of the ambition of each member who showed above-mentioned drawing 11 (c), the state where the scene where Mr. A was doing the tee shot was displayed is shown here (video4). Here, the superimposed title display Simp explaining the scene to "A Mr. tee shot" the superimposed-title display Simp and [which carry out as shown in "1H 300yd par5", and show the information on the hole] Say is performed. the superimposed title display Simp in the character of "GREAT" which explains effectively that it is a wonderful shot is performed. For example, although the superimposed title display Simp of this "GREAT" is displayed according to the guide display ***** alter operation shown in drawing 9 (e), Thus, for example as an editing effect, it comprises this embodiment so that the superimposed title display Simp of such a design may be displayed automatically. The display of such a scene of a tee shot is also performed in order about a part for all members (video5, 6). If the fundamental display is obtained at all by playing the

recording file also in this case, a reproducing output may be carried out [sound / which was simultaneously recorded at this time], and this can be realized easily.

[0137]After this, for example after a tee shot, a certain necessary editing effect is given and the picture sound of the recording file photoed arbitrarily on the spot is outputted. In this case, after the display of the tee shot scene of each member who showed drawing 11 (d), as it is shown in drawing 12 (a), the scene (what was recorded as video7) of Mr. A's trouble shot is displayed. Here, the contents which show the information on a hole as the superimposed title display Simp, and the contents which show with the present score that Mr. A is in a trouble shot are inserted.

[0138]If it continues, as shown, for example in drawing 12 (b), it is reproducing video8, and the animation of Mr. A who is doing the comment after a trouble shot is displayed, and the sound of the comment at this time is also outputted. What explains the present situation as the superimposed title display Simp here, for example as shown in "Mr. A who comments", and the thing which shows the advancing process and score of a play like "the score+8 of the 4H end present" are displayed.

[0139]In this case, following above-mentioned drawing 12 (b), as scenery which the user photoed as video9, as the video (or still picture) which photoed the green of a certain hole shows drawing 12 (c), it is displayed on it. In this case, BGM prepared with the application program for edit is chosen suitably, and is outputted as a sound. at this time, it does not matter even if at least BGM compounds BGM and it makes it output it to the good sound produced by carrying out and playing from the recording file of this video9 as voice response.

[0140]And supposing such a display is performed and the video output to a game end is performed, be shown in drawing 13 (a) as a display screen. The score in which each old member's results are shown is displayed. This score display is obtained based on the information acquired by the score alter operation shown in drawing 10 (e).

[0141]And an end of a score display will perform the display by a gestalt as shown, for example in drawing 13 (b) as an ending title. while the picture of the character at which it is smiling sweetly prepared, for example with the application program for edit is displayed here -- "-- it says -- dividing and coming out -- this time -- " -- "B Mr. championship" -- the superimposed title display Simp to say and which shows a champion effectively is displayed. Although this champion's specification is later mentioned also with the preparation method of a script, it is performed by referring to each member's score obtained by the score alter operation shown in drawing 10 (e). The reproduction as an image work is completed by the end of a display of this ending title.

[0142]8-4. The contents of the script for realizing the display as an image work shown in the contents then above-mentioned drawing 11 - drawing 13 of a script are shown. As mentioned above, the input acquired according to the guide display as shown in drawing 8 - drawing 10, and the meta information called a script file by using it combining the file as an edit raw material recorded as a recording file consist of video cameras of this embodiment. In the necessary opportunity (it is preferred that it is immediately after actually) after the information inputting and photography according to a guide display are completed, construction of this script file in the bottom where the application program for edit is executed. For example, the video controller 38 shall be performed using the subset of XML carried in the inside. Here, based on SMIL grammar, the example which used JAVA A431pplet for the superimposed title is shown.

<seq> As for// information currently used, coursename and the time //titleshow applet automatically recorded at the time of photography display a title. // section 1 (it corresponds to drawing 11 (a))

<applet code= "titleshow">. < -- param name="course"value= "Kashiwa CC"name=" -- date"value="98/4/4 08 -- : -- 00 -- " -- name -- = -- " -- caption"value -- = -- " -- a golf competition -- " -- > -- < -- /-- applet -- > -- /-- /-- use -- carrying out -- **** -- information. A party //thumbshow applet displays the thumbnail of the specified picture. // section 2 (drawing 11 (b))

<applet code= "thumbshow">. < -- param name -- = -- " -- partyname"value -- = -- " -- A -- him -- B -- him -- C -- him -- " -- name -- = -- " -- partythumb"value -- = -- " -- video -- one -- video -- two -- video -- three -- " -- > -- < -- /-- applet -- > -- /-- /-- use -- carrying out -- **** -- information. The //superimpose applets contained in party are superimposed title // section 3 (drawing 11 (c)) about the specified text.

<par>//picture, and a caption. Simultaneously enthusiasm of comment <applet code= "superimpose"> <= [param name] "bottomcaption"value=" today before display <video src="video2">// start. Fukushima Mr. " to tell -- a </applet> </par>//3 person repetition. // section 4 (drawing 11 (d))

<par>//picture, and a caption. It is a display <video src="video5">//A Mr. tee shot simultaneously. <applet code= "superimpose"> <param name="bottomcaption"value= "A Mr. tee shot">. param name -- = -- " -- centercaption"value -- = -- " -- great"param name - - = -- " -- topcaption"value -- = -- " -- one -- H -- 300 -- yd par -- five -- " -- > -- < -- /-- applet -- > -- < -- /-- par -- > -- /-- /-- use -- carrying out -- **** -- information. The //superimpose applets contained in party are superimposition // section 5 (drawing 12 (a)) about the specified text.

<par>//picture, and a caption. <+8" of A Mr. present of the param name="bottomcaption"value=" 2nd hit trouble> trouble-shot <applet code="superimpose"> [display <video src="video7">//] simultaneously. param name="topcaption"value="4H 180yd par3"> </applet> </par>// information currently used, The //superimpose applets contained in party are superimposition // section 6 (drawing 12 (b)) about the specified text.

<par>//picture, and a caption. simultaneously display <video src= "video7">//trouble shot <applet code="superimpose"> <param name=" "[bottomcaption"value] "score+8 of the 4H end present" param. BGM as a raw material beforehand contained in name="topcaption"value="Mr. Awho comments"> </applet> </par>// application program for edit is synchronized with video9, and it is an output. // section 7 (drawing 12 (c))

<par> They are reproduction <video src="video9">//scenery <audio src="BGM">// audio track which the application program for edit had prepared beforehand simultaneously about BGM prepared for//picture, and the application program for edit, For example, as a file (track), it is recorded on the predetermined directory in a disk.

// section 8 (drawing 13 (a)) which a </par>//scoreshow applet reads a score from the specified score file, and creates the score file at the time of display // script creation <applet code="scoreshow"> <param name= "score.txt"> </applet>// section 9 (drawing 13 (b))

By the reason for calling it comment <applet code= "superimpose"> <param name= "topcaption"value=" of <par> <video src="video11">// victory. this time -- " -- param

name -- = -- " -- bottomcaption"value -- = -- " -- B -- him -- a championship -- " -- > -- < -
- /-- applet -- > -- < -- /-- par -- > -- < -- /-- seq -- >[0143]What is necessary is just to

perform as follows the text specified by the superimpose applet in the above-mentioned script as Image Processing Division for carrying out a superimposed title, for example.
[0144]The function of the character generator and onscreen display which are realized by the video controller 38, and the data processing/system control circuit 31 is used for one. That is, in the video controller 38, when the script which interpreted is what should display the text specified by the superimpose applet, the character/symbol information of this specified text are generated. And control to data processing / system control circuit 31 is performed so that it may be displayed on a position on the picture of the recording file by which this generated character/symbol are played.

[0145]Although it is also possible to generate the image data according to described image processing about the character of the superimposed title display Simp in which design-ization was performed like the "Kashiwa CC golf competition" of drawing 11 (a) and "GREAT" of drawing 11 (d), For example, about the thing of the above special designs. It records on the necessary directory as a file as data of the application program for edit beforehand, If it processes so that this image data may be read if needed and it may superimpose on the reproduced image of a recording file (video) (it is carried out in data processing / system control circuit 31, and such Image Processing Division is ****), The processing burden of the video controller 38, and the data processing/system control circuit 31 becomes light.

[0146]For example, the above-mentioned superimposed title processing is applied correspondingly, also when realizing the display of the telop in the guide display which makes the image pick the background previously shown in drawing 8 - drawing 10, and the display of a photography specification frame. That is, the video controller 38 reads the image data file of the telop which the application program for edit prepared, or a photography specification frame from a disk, and performs control management for that for supplying the video-signal-processing part 3. In the video-signal-processing part 3, it decodes, for example about this supplied image data file. And in data processing / system control circuit 31, according to control of the video controller 38, the image data of the decoded telop or a photography specification frame performs an image synthesizing process so that it may be displayed on the necessary position on the image pick supplied from a camera block. And it is made to carry out the display output of this image data to the indicator 6A.

[0147]8-5. Explain the generation method of a script, then the generation method of the script obtained under the environment where the application program for edit of this embodiment is started. The case where the contents of a script above-mentioned as an example for realizing the display as an image work shown in drawing 11 - drawing 13 are generated here is mentioned as an example, It is carried out to seeing how the wizard is generated from the information on the inputted set of a variable or others about the section of each script. Suppose that the calculating method of a parameter is shown by C++ language here. date is received from the calendar function with which
date=getdate();// set (for example, video controller 38) according to the course which
section 1 (drawing 11 (a)) course=coursename;// user chose are provided.

Section 2 (drawing 11 (b))

The name for for(int i=0;i<numberofparty;i++) { // number and the reference to the first


```

comment video are connected. name=name+party[i].name+', ';
partythumb=partythumb+party[i].begincomment;
it repeats by section 3//the number (drawing 11 (c))
"Mr. +party[i].name+" who tells bottomcaption= today's enthusiasm;
video=party[i].begincomment;
section 4 (drawing 11 (d))
video=party[i].teeshot;
Mr. bottomcaption=party[i].name+" -- a tee shot -- ";
switch(party[i].teeshot_quality) {case CHORO : centercaption= "*****";
break;
case OK: centercaption= "so so kana";
break;
case GREAT: centercaption= "GREAT";
break;
}
topcaption="1H"+hole[0].length+"yd par"+hole[0].par;
Section 5 (drawing 12 (a))
+party[track[i].personnumber].name of if(track[i].type=SHOT)
{bottomcaption=track[i].shotnumber+ "eye ** "track[i].shotttype+"." + Mr. " -- present " -
- +party[track[i].personnumber].score[track[i].hole];
topcaption=track[i].hole+ "H" -- +hole[track[i].hole].length+"yd
par"+hole[track[i].hole].par;
video=track[i].track;
}
section 6 (drawing 12 (b))
if(track[i].type=COMMENT) {bottomcaption=track[i].hole+ "score of the end present of
H" +party[track[i].personnumber]
.score[track[i].hole];
Mr. +party[track[i].personnumber].name+" [ = / "it comments" / topcaption] -- ";
video=track[i].track;
}
section 7 (drawing 12 (c))
if(track[i].type=SCENE) {audio="BGM"// thing video=track[i].track beforehand
prepared along with the application program for edit;
}
Section 8 (drawing 13 (a))
The score inputted beforehand is changed into a file called score.txt, and it records on a
disk.
Section 9 (drawing 13 (b))
A sum total score looks for the minimum member first. When it is the i-th person
video=party[i].endcomment;
It is called topcaption=" and is " this time.;
Mr. bottomcaption"value=party[i].name+" -- a championship -- ";
By performing such an operation, a script can be drawn from the input acquired by the
alter operation explained by drawing 8 - drawing 10, and the recording file of an image
pick.

```

[0148]8-6. Explain the example of processing operation for realizing processing operation, then edit operation explained until now with reference to the flow chart of drawing 13 and drawing 14. After the video controller 38 functions as a master controller, for example in the processing operation shown in drawing 13 and drawing 14, If needed, when data processing / system control circuit 31, the driver controller 46, and the camera controller 25 perform control management (or signal processing), it realizes. This processing serves as processing operation performed under the environment where the application program for edit is started.

[0149]Processing until the processing operation shown in drawing 14 generates a script based on the guide display shown, for example in drawing 8 - drawing 10 and the information inputting (the recording of an image pick is included) performed according to this guide display is shown. First, supposing the directions for operating the guide function display of the application program for edit are performed by the prescribed operation to a user's final controlling element 7, the video controller 38 will progress to Step S101, Control management for reading the application program for edit from the disk with which it is loaded is performed. And in continuing Step S102, processing for starting the application program for edit is performed using RAM of video controller 38 inside.

[0150]. Are contained in the application program for edit in the following step S103. With reference to the exposure control value over the imaging optical system of the video camera device concerned, control for performing exposure amendment to AE (Automatic Exposure) function in the lens block 1 is performed based on this exposure control value. This processing is directed that the video controller 38 performs control for AE amendment to the camera controller 25, for example. In the camera controller 25, control to the lens block 1 will be performed so that amendment of AE may be appropriately performed based on the above-mentioned exposure control value.

[0151]And in the following step S104, the control management for performing a guide display is started according to the started application program for edit. By this, a guide display will be performed to the indicator 6A henceforth.

[0152]Processing for Step S105 to save the alter operation performed one by one according to the directions to which it is urged by a guide display, and the contents (it is input and considered as operational input information and a recording file here) obtained by photography (recording) is performed. That is, although a user is made to have necessary alter operation or recording performed according to the input of the information to which it is urged for every guide display as drawing 8 - drawing 10 explained, for example, Processing which holds the information acquired by such alter operation and the recording file obtained by recording as an edit raw material is performed. Here, the input (operational input information) acquired by the operational input shall be made to be held at RAM of video controller 38 inside, for example. About the recording file obtained by photography, it will record as a file (track) to the directory in the folder of a disk. and suppose that all information inputting according to a guide display was performed for example, -- having (that is, it results in the end of a guide display) -- it is made to progress to Step S106.

[0153]In Step S106, processing for reconstructing the held contents according to the scenario beforehand set up as an application program for edit is performed. A jam sets up the contents of a program described in parallel to explanation by drawing 8 - drawing 10.

Here, although processing of this step S105 shall be performed after the end of a guide display, For example, actually, as processing of Step S105, whenever acquisition (maintenance of operational input information and record of a recording file) of contents is performed, processing of Step S106 may be made to perform.

[0154]After processing of the above-mentioned step S106 is ended, the video controller 38 progresses to Step S107, The contents of the contents reconstructed as mentioned above are used, and processing for generating a script according to the scenario beforehand set up by the application program for edit is performed. Thereby, the script by a descriptive content as shown previously, for example is obtained.

[0155]And in the following step S108, control management for recording the script generated as mentioned above on the auxiliary data tracks of a disk as a script file is performed, and old processing is ended. The script file which description for specifying the recording file which serves as an edit raw material by old processing in addition to the application program for edit currently beforehand recorded on the disk, and editorial contents was made will be recorded.

[0156]Then, an image work is explained with reference to the flow chart of drawing 15 about the processing operation for playing based on the edit playback using the disk produced by performing it above, i.e., the recording file used as an edit raw material.

[0157]For example, supposing necessary operation for making reproduction of an image work start is performed to a final controlling element, the video controller 38 will shift to the processing shown in this drawing 15. In the processing shown in this figure, reading the script currently first recorded on the disk in Step S201 is performed. The script which should be read here is a script which was created according to execution of the prior application program for edit and in which the contents of the image work reproduction sake were described. The script read from the disk is stored, for example to the predetermined region of the buffer memory 32. If generous to the storage capacity of RAM of video controller 38 inside, constituting so that it may store to this internal RAM will also be considered.

[0158]And in Step S202, regeneration which started the interpretation about the script file read from the disk as mentioned above, and followed the descriptive content of the interpreted script as processing of continuing Step S203 is performed. That is, the necessary recording file (and files, such as an audio track for BGM) needed according to description of a script is read from a disk, and control to the necessary functional circuit unit is performed so that regeneration for outputting this as a picture/a sound may be performed. Speech signal processing for picture signal processing for the superimposed title display of a necessary character or a symbol corresponding to the <applet> tag etc. to be performed with this, for example, the output of BGM, etc., etc. are performed. By processing of this step S203, the reproducing output mode of the picture/sound as an image work shown, for example in drawing 11 - drawing 13 will be obtained.

[0159]And old processing will be ended when it is that closing of the interpretation of a script was performed as processing of Step S204. That is, where reproduction of an image work is performed to the last, old reproduction motion will be ended. Although not shown in this figure, if reproduction of an image work will be ended at that time if stopping operation is performed, for example and halt operation is performed, The state where the picture currently displayed when halt operation was performed was displayed is maintained, and control management is performed so that advance of a script

interpretation may also be halted.

[0160]Although the above-mentioned embodiment explained the composition for realizing editing processing for creating the image work corresponding to a golf competition, this is an example to the last, and also when creating the image work according to other purposes, it is possible to realize according to the composition explained until now.

[0161]The guide display shown as the above-mentioned embodiment, how to give the various editing effects in the state where it was finished as an image work, etc. can actually respond, and can be changed suitably. As a language of the script adopted in this embodiment, it is not limited to SMIL and the composition which other languages adopt may be taken.

[0162]For example, the example of editing operation shown in drawing 8 - drawing 10 as the above-mentioned embodiment is an example to the last, and if it is an operation form which is simplified by the general user, even if other operation form and other display styles are taken, it will not be cared about. It is also considered that it is made to carry out by [as constituting as an example so that the indicator 6A may have a function as a touch panel, and carrying out pointing of the operation which applies to explanation by drawing 8 - drawing 10 using a finger or a certain pointing device to the indicator 6A].

[0163]Although it was considered as the disk recording playback equipment based on MD-DATA2 as a video record reproduction part as a video camera of this embodiment, As a video record reproduction part, you may be considered as the recording and reproducing device corresponding to the disk shape recording medium of other kinds besides the composition as this embodiment. In order to compress dynamic image data, this embodiment explained as what adopts an MPEG2 system, but the method in which the compression encoding of other dynamic image data is possible may be adopted, for example. There is no necessity in particular that the compression technology about still picture data and voice data is also limited to what was illustrated as this embodiment (JPEG, ATRAC2 grade).

[0164]

[Effect of the Invention]As explained above, this invention as a program (application program for edit) for editing processing, What realizes GUI as a guide function for urging the input of the information which is needed for edit (input instruction program) is prepared, If record to the recording medium of the input of the necessary input by alter operation and the file of an image pick (a sound is also included) is performed according to this guide display, As editing processing according to the above-mentioned program (edit program), the script for giving a necessary reproducing output mode about the file of an image pick is generated based on the input acquired by the above-mentioned alter operation, and it is made to be recorded on a recording medium. And at the time of reproduction, the file of the above-mentioned image pick is made to be reproduced, giving the editing effect according to the descriptive content of this script. That is, at the time of photography, a user only performs the alter operation and photography according to a guide display, without he performing complicated editing processing especially to the sauce obtained by photoing with a video camera etc., such as a picture and a sound, It has the effect that the image work etc. in which edit of quality suitably advanced as a result was given can be created.

[0165]By and the thing for which picture information and speech information, the edit

program that has the above-mentioned guide function, and the thing which set up each record section where a script file is recorded are provided as a recording medium corresponding to the above-mentioned invention. The editing work and edit reproduction which a user makes the purpose can be provided with one recording medium by this invention. That is, work of the alter operation for edit, photography, etc. and edit reproduction based on the created script can be performed by carrying out record reproduction of the one recording medium with which the edit program according to a certain purpose is recorded with the recording and reproducing device corresponding to this. The time and effort of the work of the user for edit is saved by this, and also library management of the edited video source can be made easy.

CLAIMS

[Claim(s)]

[Claim 1] An input instruction program which realizes at least a display of a user interface picture which directs an input of edit material information, An edit program which realizes editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by this input instruction program, A script file which is described by predetermined program language and specifies a picture and a reproducing output mode about a sound, As a recording and reproducing device which can perform record or reproduction corresponding to a recording medium with which picture information and speech information are recorded, A display control means which performs a display output of the above-mentioned user interface picture according to an input instruction program reproduced from the above-mentioned recording medium, A control means to which operation for inputting necessary information is carried out according to an instruction content displayed by the above-mentioned user interface picture, An imaging means which obtains an image pick, an image recording means recorded to the above-mentioned recording medium according to an instruction content displayed by the above-mentioned user interface picture by making into described image information an image pick obtained by the above-mentioned imaging means, and a sound-collecting means to collect a sound, A voice recording means to record on the above-mentioned recording medium by making into the above-mentioned speech information a sound collected by the above-mentioned sound-collecting means according to directions by the above-mentioned user interface picture, As editing processing according to the above-mentioned edit program reproduced from the above-mentioned recording medium, Information inputted by the above-mentioned control means, and picture information recorded on a recording medium by described image recording device and the above-mentioned voice recording means, The script file generation / recording device which uses speech information as edit material information, generates automatically a script file for edit which description for a picture and voice response according to the above-mentioned scenario to be obtained was made, and is recorded on the above-mentioned recording medium, According to a descriptive content of the above-mentioned script file for edit reproduced from the above-mentioned recording medium, reproduction about picture information currently recorded on the above-mentioned recording medium and speech information, and a necessary

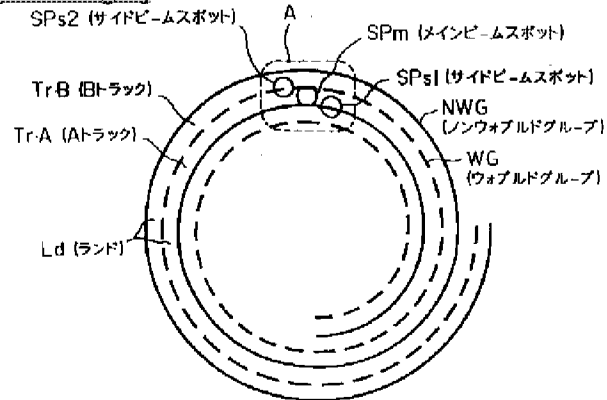
picture/speech signal processing are performed, A recording and reproducing device provided with a reproduction means it is made to have a picture and voice response performed.

[Claim 2]A display control process which performs a display output of this user interface picture based on an input instruction program which realizes a display of a user interface picture which directs an input of edit material information, Input acquisition processing in which information inputted by the operation performed according to an instruction content displayed by the above-mentioned user interface picture is acquired, Image recording processing recorded to the above-mentioned recording medium according to an instruction content displayed by the above-mentioned user interface picture by making into described image information a picture picturized by an imaging means, Voice recording processing recorded on the above-mentioned recording medium by making into the above-mentioned speech information a sound collected by a sound-collecting means according to directions by the above-mentioned user interface picture, Information acquired by the above-mentioned input acquisition processing according to an edit program which realizes editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by the above-mentioned input instruction program, Picture information and speech information which were recorded on a recording medium by described image recording processing and the above-mentioned voice recording processing are used as edit material information, The script file generation / recording processing which generates automatically a script file for edit which description for a picture and voice response according to the above-mentioned scenario to be obtained was made, and is recorded on the above-mentioned recording medium, According to a descriptive content of the above-mentioned script file for edit reproduced from the above-mentioned recording medium, reproduction about picture information currently recorded on the above-mentioned recording medium and speech information, and a necessary picture/speech signal processing are performed, Recording and reproducing systems constituting so that execution of regeneration which performs a picture and voice response is possible.

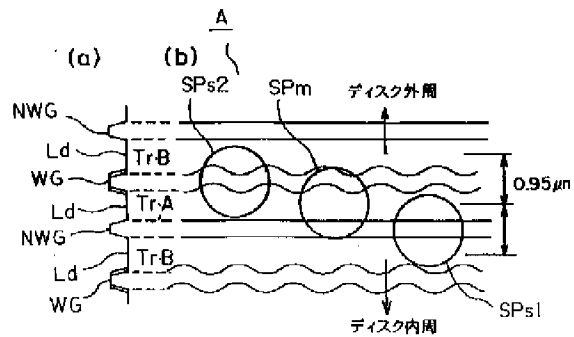
[Claim 3]A record section whose record of an input instruction program which realizes at least a display of a user interface picture which directs an input of edit material information is enabled, A record section whose record of an edit program which realizes editing processing for performing a picture and voice response according to a scenario beforehand set up using edit material information acquired by this input instruction program is enabled, As edit material information which is said to have been obtained according to an instruction content displayed by the above-mentioned user interface picture, Picture information, speech information, and text are a record section whose record is enabled, and a thing which is described by predetermined program language and specifies a picture and a reproducing output mode about a sound, A recording medium, wherein ** is set to a record section where a script file which has a descriptive content for realizing a picture and voice response which followed the above-mentioned scenario by being generated under editing processing of the above-mentioned edit program, and using the above-mentioned edit material information is recorded.

DRAWINGS

[Drawing 1]



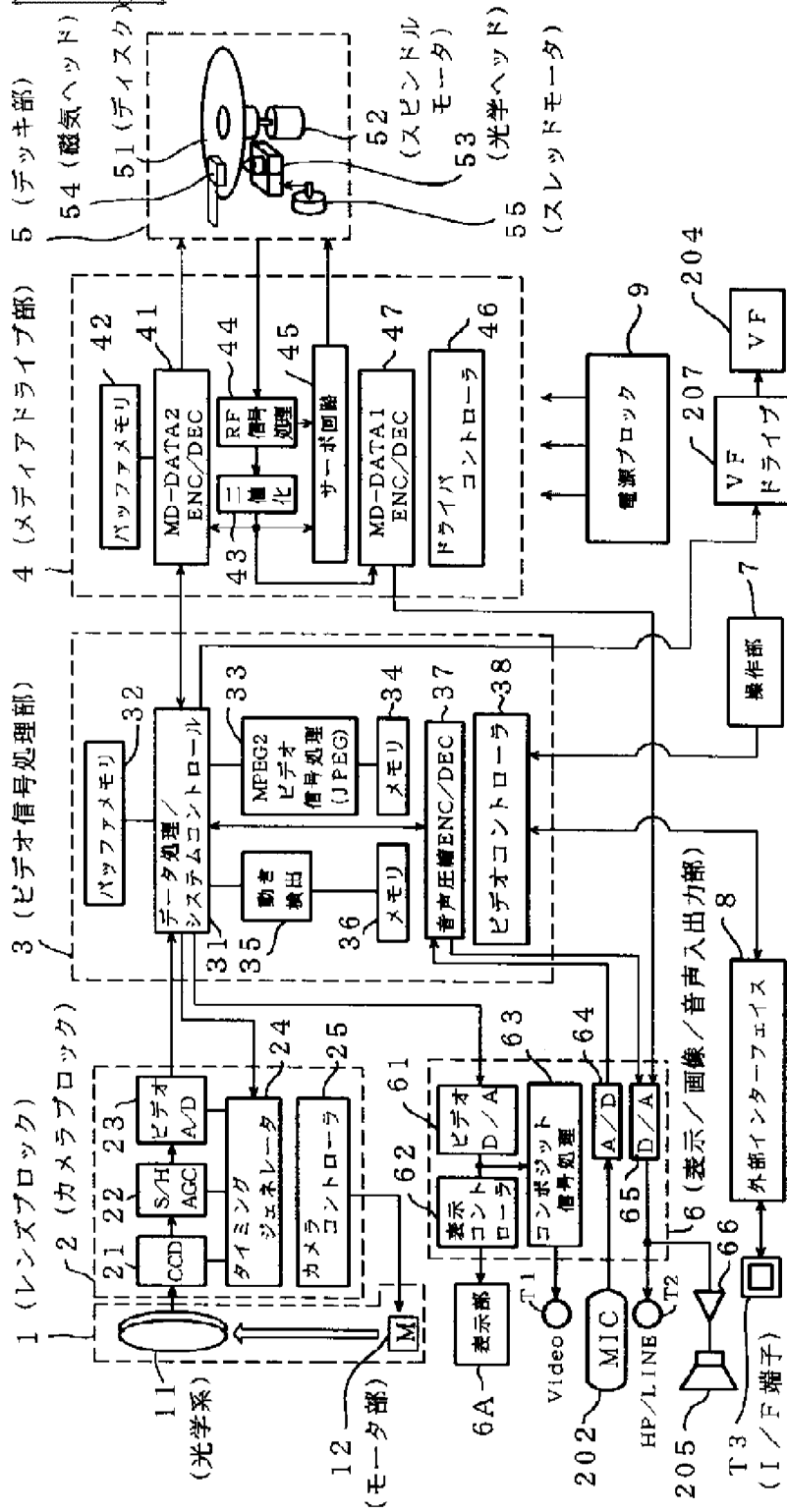
[Drawing 2]



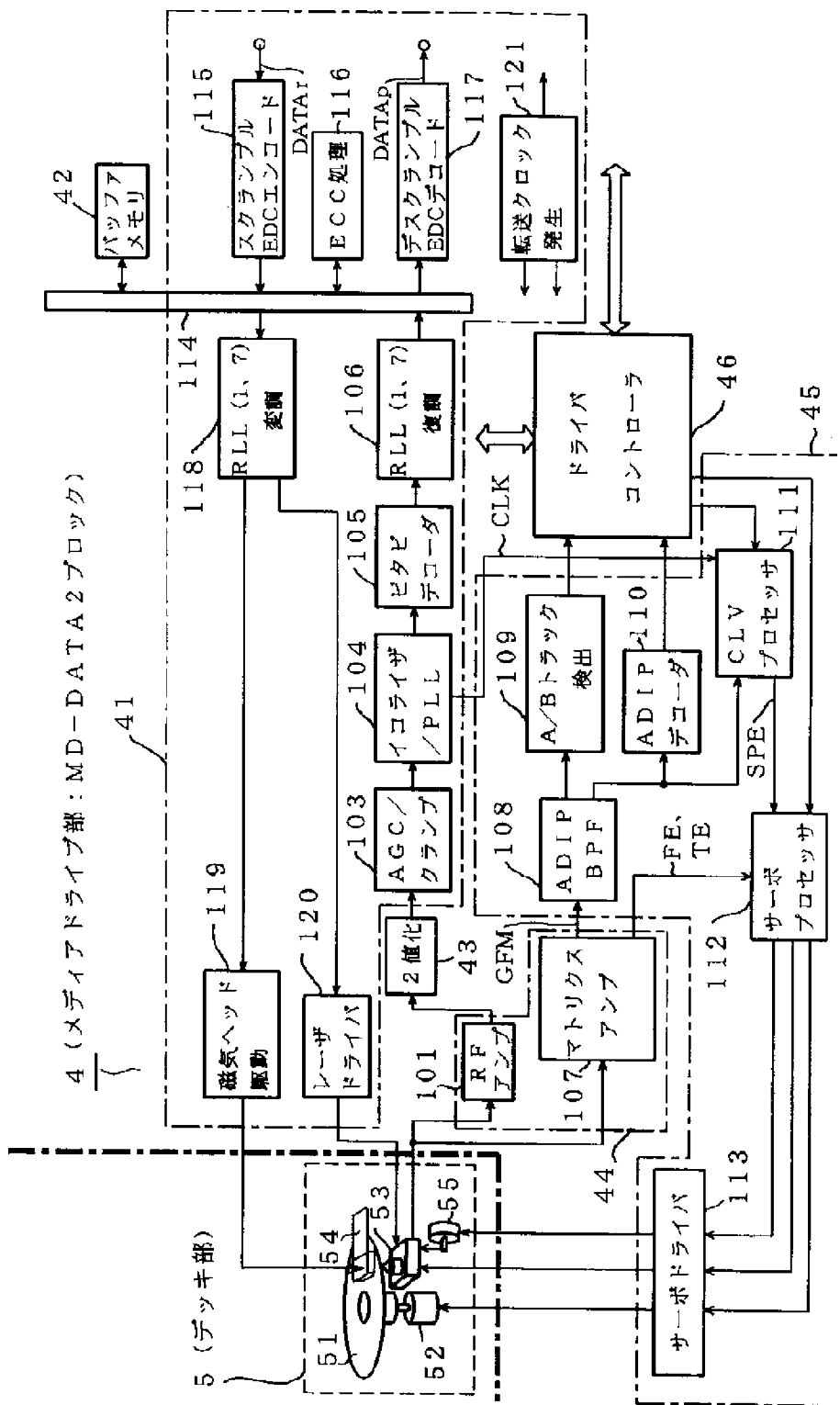
[Drawing 3]

	MD-DATA 2	MD-DATA 1
トラックピッチ	0.95 μm	1.6 μm
ビット長	0.39 μm/bit	0.59 μm/bit
λ・NA	650 nm・0.52	780 nm・0.45
記録方式	LAND 記録	GROOVE 記録
アドレス方式	インターレースアドレッシング (ダブルスパイラルの片方ウォブル)	シングルスパイラルの両側ウォブル
変調方式	PLL (1, 7)	EFM
誤り訂正方式	RS-PC	ACIRC
インターリーブ	ブロック完結	畳み込み
冗長度	19.7%	46.3%
線速度	2.0 m/s	1.2 m/s
データレート	589 kB/s	133 kB/s
記録容量	650 MB	140 MB

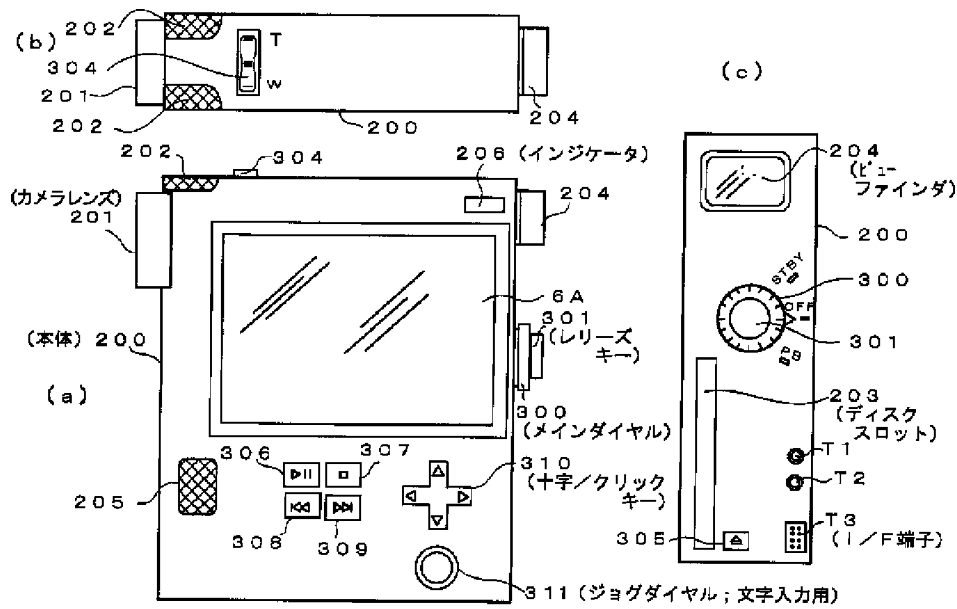
[Drawing 4]



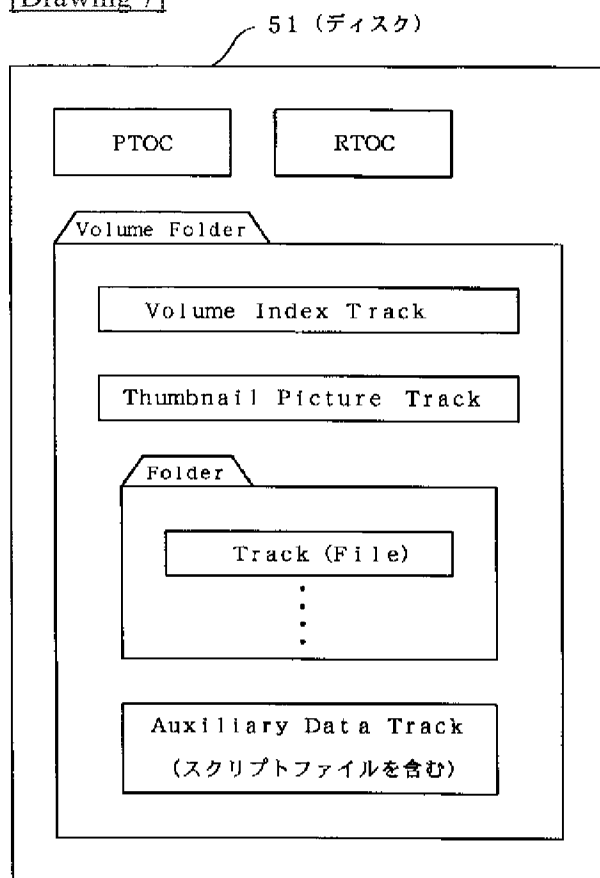
[Drawing 5]



[Drawing 6]

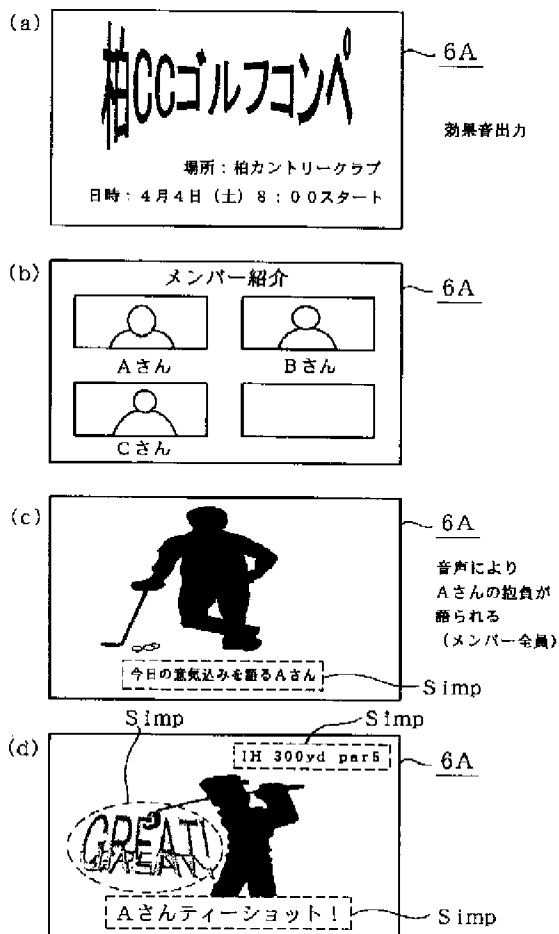


[Drawing 7]

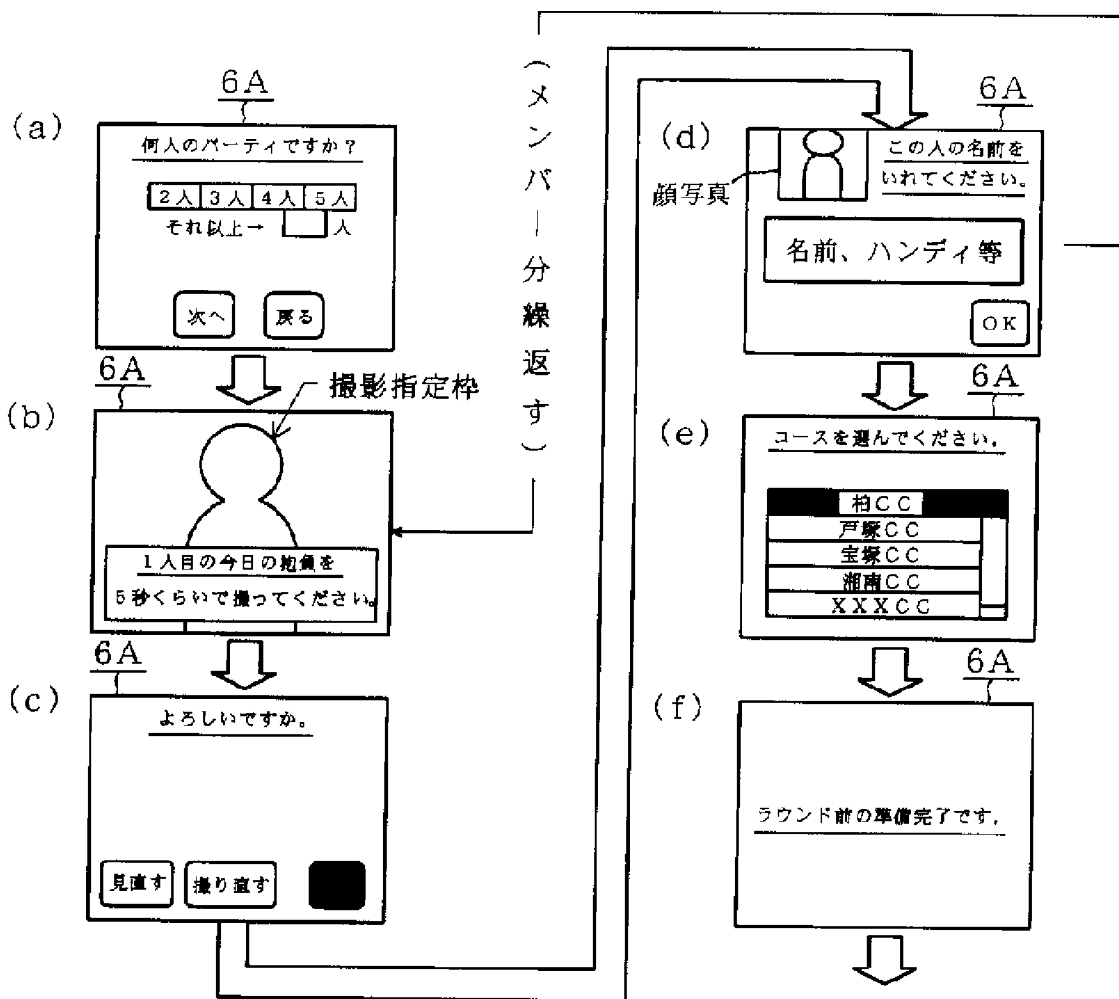


ディスク内のデータ構造

[Drawing 11]



[Drawing 8]



[Drawing 9]

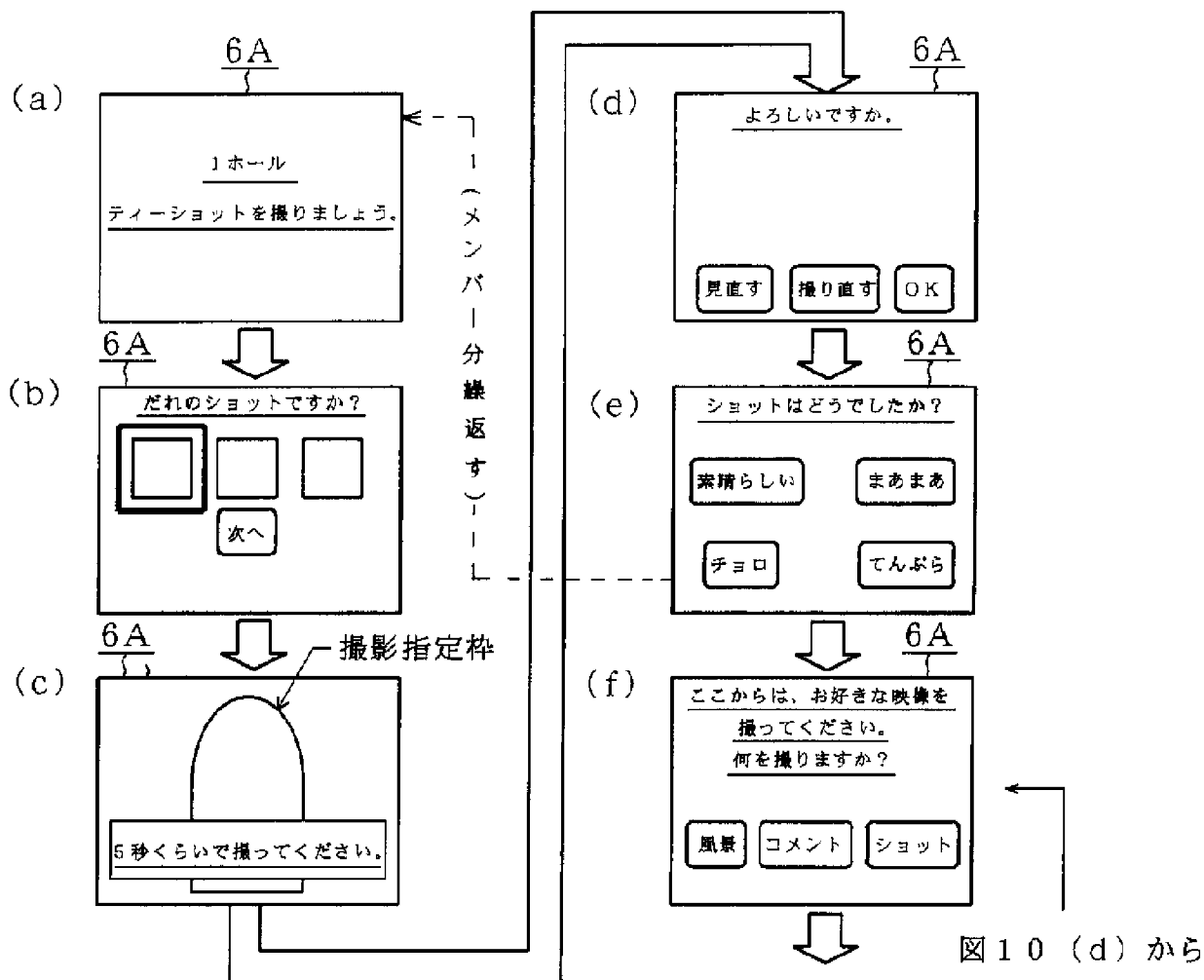
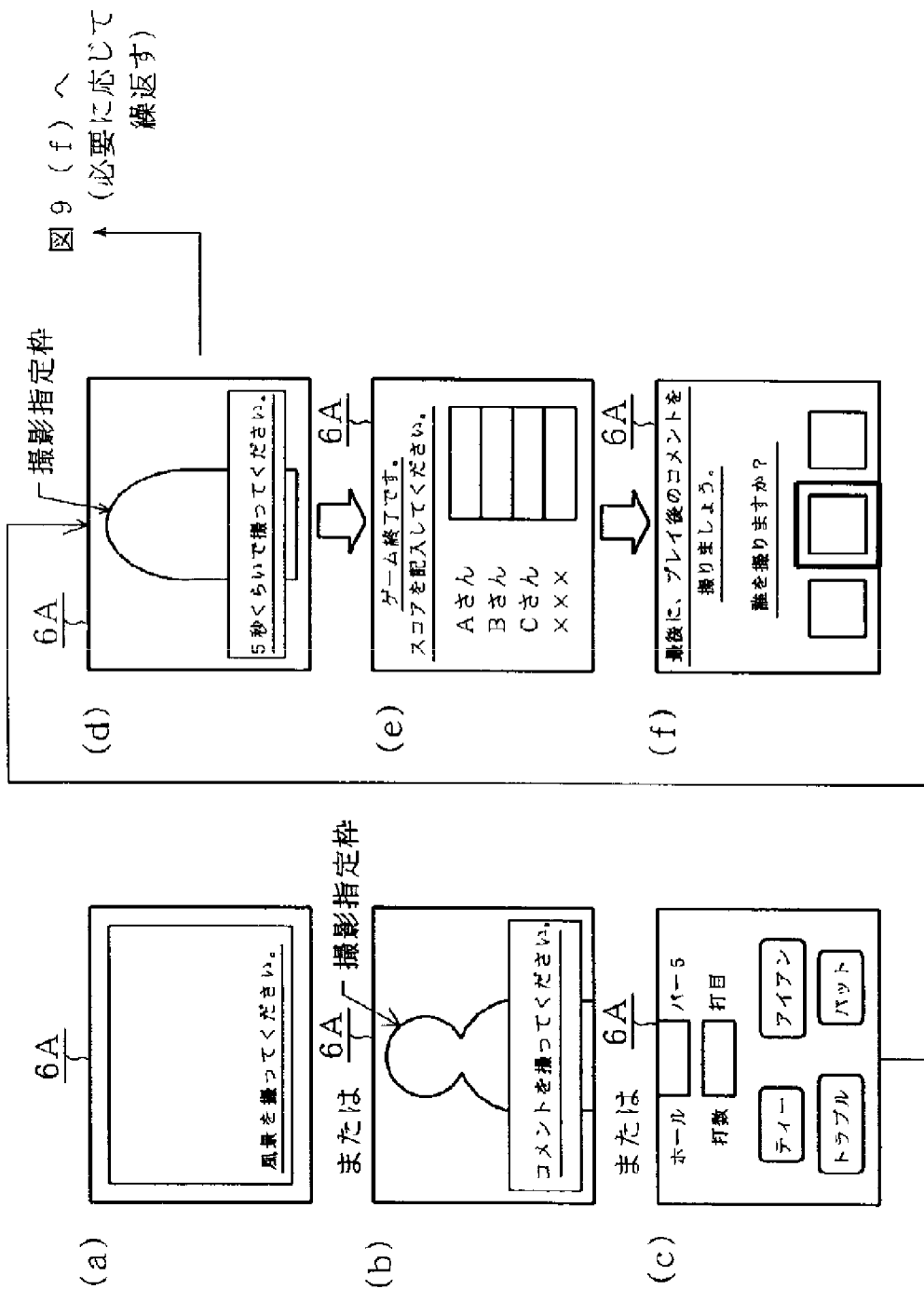
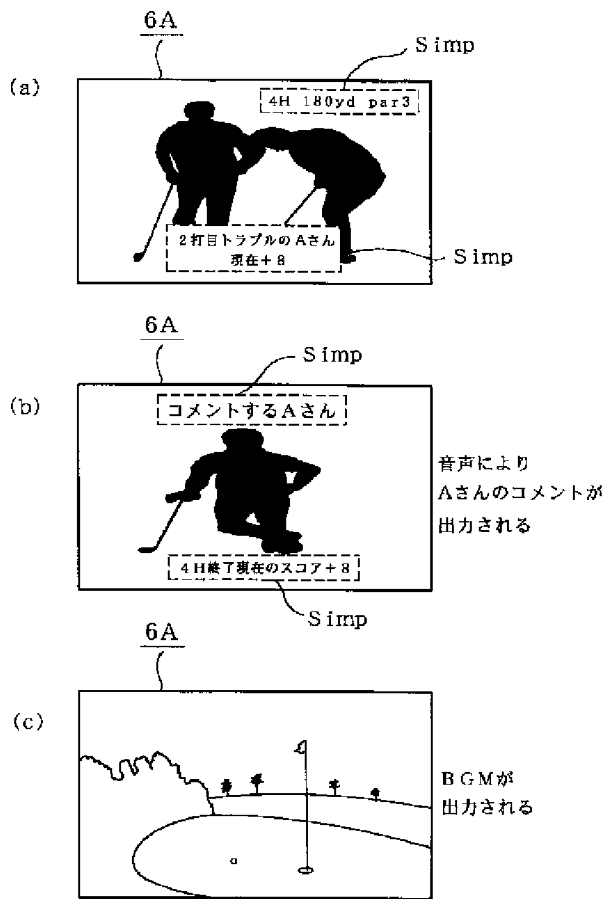


図 10 (d) から

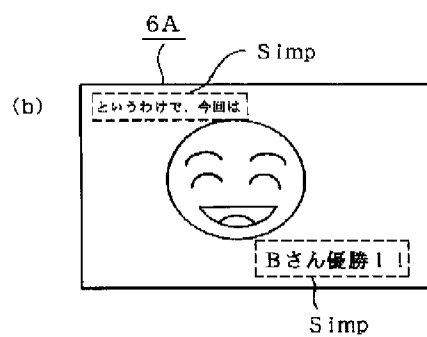
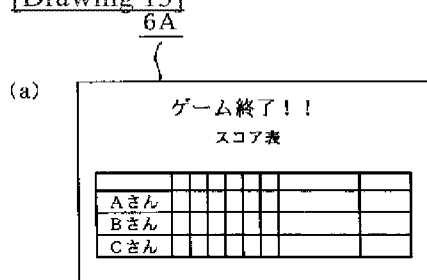
[Drawing 10]

[Drawing 12]

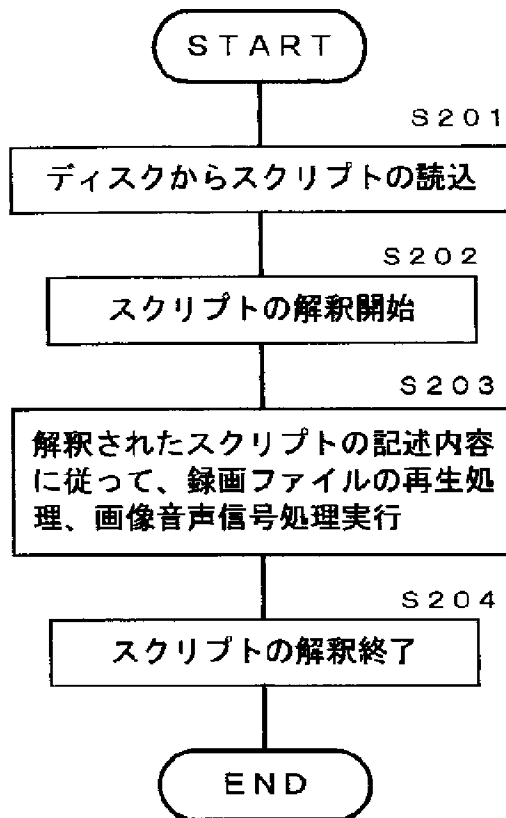




[Drawing 13]



[Drawing 15]



[Drawing 14]

